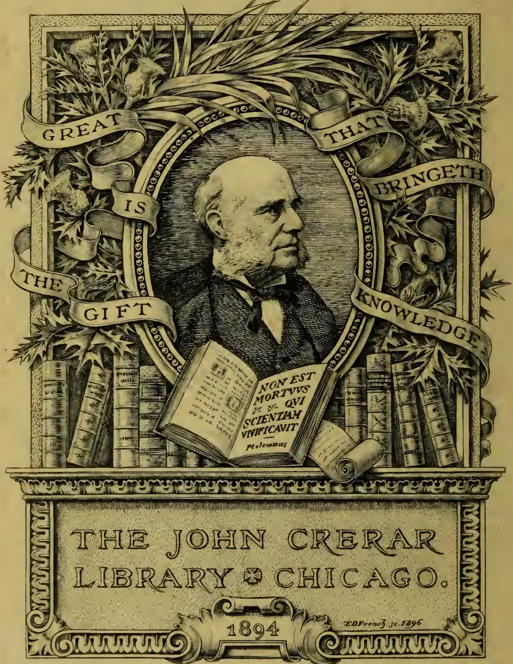
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OF

TUFTS COLLEGE

1898-99

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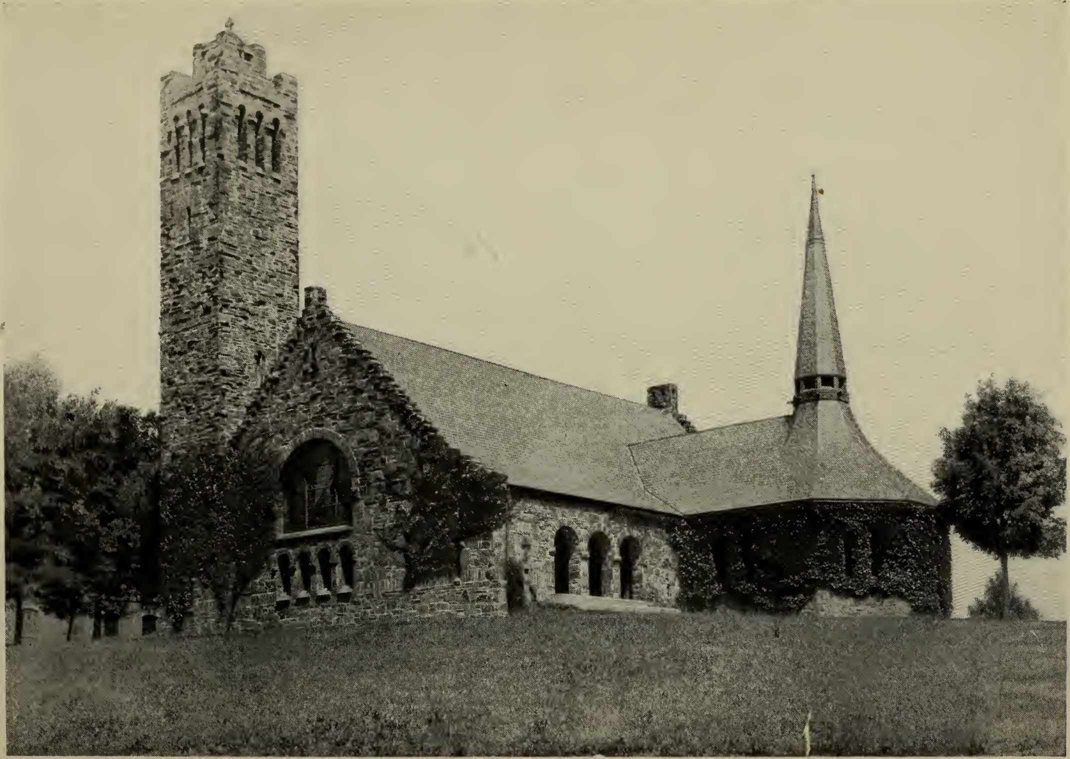

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Calendar.

1898.

SEPT.	22.	College year begins (all departments except the Medical School), Thursday morning.
SEPT.	25.	Russell Lecture, Sunday, 10.30 A.M.
NOV.	23.	Thanksgiving recess begins, Wednesday at 1 P.M.
NOV.	27.	Thanksgiving recess ends, Sunday evening.
DEC.	21.	Christmas recess begins, Wednesday at 1 P.M.

1899.

JAN.	4.	Christmas recess ends, Wednesday evening.
FEB.	4.	End of first half-year, Saturday. Plans of study for the second half-year must be reported before noon of this day.
FEB.	6.	Second half-year begins, Monday.
APRIL	1.	Spring recess begins, Saturday at 1 P.M.
APRIL	9.	Spring recess ends, Sunday evening.
MAY	19.	Prize Reading in the College of Letters, Friday at 3 P.M.
MAY	30.	Prize Reading in the Divinity School, Tuesday.
JUNE	16.	Class Day, Friday.
JUNE	18.	Baccalaureate Sermon, Sunday, 4.30 P.M.
JUNE	21.	Forty-second Annual Commencement, Wednesday.

First Examinations for Admission to the College of Letters.

JUNE	22.	Algebra, 9 to 10.30 A.M.
		English, 10.30 A.M. to 12.30 P.M.
		Plane Geometry, 2 to 4 P.M.
		Physics, 4 to 5 P.M.
		Drawing, 4 to 6 P.M.
JUNE	23.	Elementary and Advanced Latin, 9 to 12 A.M.
		Advanced Mathematics, 9 to 11 A.M.
		Natural History (two subjects), 11 A.M. to 1 P.M.
		History, 2 to 4 P.M.
		Chemistry, 4 to 5 P.M.
JUNE	24.	Elementary and Advanced Greek, 9 to 12 A.M.
		Intermediate and Advanced German and French, 9 to 11 A.M.
		Elementary German and French, 11 A.M. to 12.30 P.M.

SUMMER VACATION, THIRTEEN WEEKS.

Second Examinations for Admission to College of Letters.

SEPT.	19.	Algebra, 9 to 10.30 A.M. English, 10.30 A.M. to 12.30 P.M. Plane Geometry, 2 to 4 P.M. Drawing, 4 to 6 P.M.
SEPT.	20.	Elementary and Advanced Latin, 9 to 12 A.M. Advanced Mathematics, 9 to 11 A.M. Natural History (two subjects), 11 A.M. to 1 P.M. History, 2 to 4 P.M.
SEPT.	21.	Elementary and Advanced Greek, 9 to 12 A.M. Intermediate and Advanced German and French, 9 to 11 A.M. Elementary German and French, 11 A.M. to 12.30 P.M. Physics, 2 to 3 P.M. Chemistry, 3 to 4 P.M.

SEPT.	20.	Examination for Admission to the Divinity School in Miner Hall, beginning at 9 A.M.
SEPT.	21.	College year begins, Thursday morning. Registration of all students at Secretary's office. Major departments and plans of study for the first half-year must be reported before noon of this day.
SEPT.	23.	Regular College exercises begin.
SEPT.	24.	Russell Lecture, Sunday, 10.30 A.M.
NOV.	29.	Thanksgiving recess begins, Wednesday at 1 P.M.
DEC.	3.	Thanksgiving recess ends, Sunday evening.
DEC.	20.	Christmas recess begins, Wednesday evening.

1900.

JAN.	3.	Christmas recess ends, Wednesday evening.
FEB.	3.	End of first half-year, Saturday.
FEB.	5.	Second half-year begins, Monday.

TUFTS COLLEGE is a railway station four miles from Boston, on the Southern division of the Boston & Maine Railroad. The post-office address is — **TUFTS COLLEGE, MASS.**

Historical Sketch.

Tufts College was founded under a charter granted on the twenty-first day of April, 1852, by the General Court of Massachusetts. Under this charter, as later amended, the College is empowered "to confer such degrees as are usually conferred by colleges in New England." Its organization now comprises the College of Letters, the Divinity School, and the Medical School. The College of Letters gives the degrees of Bachelor of Arts, Bachelor of Philosophy, and for special courses in science and engineering that of Bachelor of Science; and the graduate degrees of Master of Arts, Doctor of Philosophy, Civil, Electrical, and Mechanical Engineer. The course in the Divinity School leads to the degree of Bachelor of Divinity; that in the Medical School to the degree of Doctor of Medicine.

The movement resulting in the founding of the College was set on foot in 1847, through the efforts of the Rev. Thomas J. Sawyer, of New York, the Rev. Hosea Ballou, 2d, of Medford, and the Rev. Thomas Whittemore, of Cambridgeport. After much consideration the work of raising a fund of one hundred thousand dollars for a foundation was undertaken, under the direction of the Rev. Otis A. Skinner, of Boston. About sixty thousand dollars was obtained in money. Sylvanus Packard gave his bond for twenty thousand dollars additional, and Charles Tufts gave twenty acres of land on Walnut Hill, embracing the present site of the College. Mr. Tufts announced his intention of increasing his gift of land to more than one hundred acres, and thus became the largest benefactor of the young institution, which accordingly received his name. Mr. Packard was a Boston merchant, who from the beginning made the College a peculiar care, and bequeathed to it his entire fortune. Among other benefactors who may be numbered among the founders of the College were Oliver Dean, who gave it ninety thousand dollars, and Thomas A. Goddard, whose gifts, though unobtrusive, were constant, and whose widow has continued the generosity of her husband. Dr. William J. Walker came soon after, with gifts and bequests amounting to nearly three hundred thousand dollars.

While the College, as may be seen, owed its beginning to the effort and the support of members of the Universalist denomination, it was provided by the Legislature in the charter that

> "No instructor in said college shall ever be required by the Trustees to profess any particular religious opinions as a test of office, and no student shall be refused admission to or denied any of the privileges, honors, or degrees of said college, on account of the religious opinions he may entertain."

This provision has always been interpreted by the Trustees and Faculty in its broadest sense. The non-sectarian character of the work of the College is amply shown by the membership of its Faculty and student body. The truth, and not the maintenance of any religious or political doctrine, has been the aim of its research and its instruction.

Students were first formally admitted in 1855. The only building at that time was the main College building, now known as Ballou Hall. The next building to be erected was a small brick dormitory, now the Library building. The large dormitory known as East Hall was the next addition to the group, and in 1872 West Hall was opened to students. It was ten years before building operations were renewed by the College. The original Faculty numbered five. The first class, of three members, was graduated in 1857.

At the outset, provision was made for a course of study leading to the degree of Bachelor of Arts. The only feature of its work peculiar to Tufts College in these years of its beginning was the attention given to the study of history. The first President of the College, the Rev. Hosea Ballou, 2d, D.D., was likewise Professor of History and of Intellectual Philosophy, and gave instruction in history remarkable alike for its quantity and quality, at a time when the study was hardly recognized in American colleges. Four hours a week for three years was the time assigned to this subject in the curriculum of Tufts College, until the death of President Ballou, in 1861, when, there being no one to take up the work, it dropped from the course.

Dr. Ballou was succeeded in the presidency by the Rev. Alonzo Ames Miner, D.D., LL.D., who was inaugurated in 1862, and continued in office until 1875, resigning in February of that year. In March, 1875, the Rev. Elmer Hewitt Capen, D.D., was elected to the Presidency of the College, vacated by the resignation of President Miner, and he was inaugurated on the second day of June.

The will of Mr. Packard required that a professor of Christian Theology should be maintained from the income of funds bequeathed by him. The Rev. Thomas J. Sawyer, D.D., was elected Packard Professor in 1869. This was the beginning of the Divinity School. In 1882 the school had developed so that its Faculty received a definite organization and Dr. Sawyer became the first Dean, retaining the office until his retirement as Packard Professor Emeritus in 1892. He was succeeded by the present Dean, the Rev. Charles H. Leonard, D.D. From the erection of West Hall until the completion of the separate buildings of the school, the western side of West Hall was occupied by the Divinity School. In 1892, by the gift of ex-President Miner, the school was provided with a convenient and handsome building, Miner Hall, containing the library, class-rooms, chapel, and reception-room ; and at the same time, largely through the efforts of the Dean of the School, the money was obtained to build Paige Hall, a dormitory for students of the Divinity School.

The Engineering Courses were begun in 1869 with a department of Civil Engineering. The great development of electrical science was promptly recognized, and a department of Electrical Engineering was opened to students in 1882, a professorship in the subject being established in 1890. This side of the College work had a very rapid development, and in 1894 the field was broadened by the addition of a course in Mechanical Engineering. In these courses an effort has always been made to give thorough practical training. The will of the late Henry B. Pearson, founding the Bromfield-Pearson School, and putting it into the hands of the Trustees of Tufts College to administer, provided a thoroughly equipped building for technical instruction, of great value in the drawing, pattern-making, machine, and forge work, so important to the engineer in any branch. The Bromfield-Pearson building was completed in the fall of 1894.

In 1883 the late Phineas T. Barnum gave fifty-five thousand dollars for the establishment of the Barnum Museum of Natural History, and by his last will he bequeathed forty thousand dollars more. The main Museum building was completed in 1884. The west wing, containing the new biological laboratories, was erected in 1894. The years 1882 and 1883 saw the completion of the Goddard Chapel, a monument of architectural beauty, given by Mrs. Mary T. Goddard as a memorial of her husband, the first treasurer of the College. The Goddard Gymnasium, a gift from the same source, was also completed in 1883. Dean Hall, a new dormitory, made necessary by the growth of the College, was erected in 1887 from funds bequeathed by the late Oliver Dean. In the College year 1894–95 two new buildings were opened in addition to the west wing of the Barnum Museum. These were the Chemical building and Commons Hall, containing students' rooms, a dining-hall, and the post-office.

The development of the College in its internal life has, however, been the notable fact of the last few years, of which the external changes have been the indications. Some unclassified students had always been in attendance at the College, and in 1866 the degree of Bachelor of Philosophy was offered to those who should pursue a prescribed course of two years, the object being to provide for those who had been prepared only in English subjects. This course was maintained until 1875, when it was changed to a course of four years. The requirements for admission were then made the same as for the regular course, except that Greek as a condition of entrance was omitted, and an amount of work in French or German, considerably less than its equivalent, was substituted. In 1891 a new course of study, leading to the degree of Bachelor of Arts, was offered for the first time, with an entrance requirement, believed to be fully the equivalent of the Greek, in two modern languages. This was one important step taken by the College toward the broadening of its opportunities, but it soon proved to be insufficient. There had been a steady growth for many years in the amount of work done and in the number of departments of learning represented. Instead of five members of the corps of instruction, as at the opening of the College in 1855, the catalogue of 1893–94 showed a body of active instructors, exclusive of the Divinity and Medical Schools, numbering twenty-seven, and offering subjects aggregating one hundred and thirteen, divided among twenty-two departments, exclusive of the Engineering Courses proper. Two new departments had been instituted in 1892, in response to the tendencies of educational development,— Biology and History. In the fall of 1893 it seemed possible to take another step and to put in operation the present plan of work, which is believed to be an approach to a rational co-ordination and connection of the college and university systems. The beneficial results, in the growth of a more earnest and scholarly spirit, have already been felt. The same principle which governed this adjustment of the College curriculum has been applied to the new entrance requirements, first announced two years ago, and now in effect.

There were opened in 1895 courses of four years each in Biology, Chemistry, General Science, and Medical Preparatory work, leading to the degree of Bachelor of Science, and accessible to graduates of all good high schools. These new courses open broad opportunities to graduates of schools, not fitting especially for college, to secure a thorough college training. Bachelors of Philosophy may, if they desire, go on to the attainment of the degree of Bachelor of Arts.

In response to a pressing demand the College was, in the summer of 1892, opened to women on the same terms as to men. Nine women registered in all departments in that year.

In the fall of 1894 there was opened for the accommodation of women students Metcalf Hall, the gift of Mr. Albert Metcalf, of Newton. The admission of women to the College was followed a year later by the opening of the Tufts College Medical School. The school has graduated four classes and has enjoyed substantial growth in the number of its students and in its facilities for work.

THE COLLEGE CHARTER.

SECTION 1. B. B. Mussey, Timothy Cotting, Richard Frothingham, Jr., their associates and successors, are hereby constituted a body corporate by the name of the Trustees of Tufts College, in Medford, and they and their successors, and such as shall be duly elected members of said corporation, shall be and remain a body corporate by that name forever. And for the orderly conducting of the business of said corporation, the said Trustees shall have power and authority, from time to time, as occasion may require, to elect a President, Vice-President, Secretary, and Treasurer, and such other officers of said corporation as may be found necessary, and to declare the duties and tenures of their respective offices; and also to remove any Trustee from the same corporation, when, in their judgment, he shall be rendered incapable, by age or otherwise, of discharging the duties of his office, or shall neglect or refuse to perform the same; and also, from time to time, to elect new members of the said corporation; provided, nevertheless, that the number of members shall never be greater than thirty.

SEC. 2. The said corporation shall have full power and authority to determine at what times and places their meetings shall be holden, and the manner of notifying the trustees to convene at such meetings, and also, from time to time, to elect a President of said College, and such professors, tutors, instructors, and other officers of the said College as they shall judge most for the interest thereof, and to determine the duties, salaries, emoluments, responsibilities, and tenures of their several offices. And the said corporation are further empowered to purchase or erect, and keep in repair, such houses and other buildings as they shall judge necessary for the said College; and also to make and ordain, as occasion may require, reasonable rules, orders, and by-laws, not repugnant to the Constitution and Laws of this Commonwealth, with reasonable penalties, for the good government of the said College, and for the regulation of their own body, and also to determine and regulate the course of instruction in said College, and to confer such degrees as are usually conferred by colleges in New England; provided, nevertheless, that no corporate business shall be transacted at any meeting unless one-third, at least, of the Trustees are present.

SEC. 3. The said corporation may have a common seal, which they may alter or renew at their pleasure, and all deeds sealed with the seal of said corporation, and signed by their order, shall, when made in their corporate name, be considered in law as the deeds of said corporation; and said corporation may sue and be sued in all actions, real, personal, or mixed; and may prosecute the same to final judgment and execution by the name of the Trustees of Tufts College; and said corporation shall be capable of taking and holding in fee simple, or any less estate, by gift, grant, bequest, devise, or otherwise, any lands, tenements, or other estate, real or personal; provided, that the clear annual income of the same shall not exceed two hundred thousand dollars.

SEC. 4. The clear rents and profits of all the estate, real and personal, of which the said corporation shall be seized and possessed, shall be appropriated to the endowment of said College in such manner as shall most effectually promote virtue and piety, and learning in such of the languages, and of the liberal and useful arts and sciences, as shall be recommended from time to time by the said corporation, they conforming to the will of any donor or donors in the application of any estate which may be given, devised, or bequeathed, for any particular object connected with the College.

SEC. 5. No instructor in said College shall ever be required by the Trustees to profess any particular religious opinions as a test of office, and no student shall be refused admission to or denied any of the privileges, honors, or degrees of said College on account of the religious opinions he may entertain.

SEC. 6. The Legislature of this Commonwealth may grant any further powers to, or alter, limit, annul, or restrain, any of the powers vested by this act in the said corporation, as shall be found necessary to promote the best interests of the said College, and more especially may appoint and establish overseers or visitors of the said College, with all necessary powers for the better aid, preservation, and government thereof.

SEC. 7. The granting of this Charter shall never be considered as any pledge on the part of the Government that pecuniary aid shall hereafter be granted to the College.

THE ADMINISTRATION OF THE COLLEGE.

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Professor of Pathology.

CHARLES P. THAYER, M.D., 74 Boylston Street, Boston.
Professor of General, Descriptive, and Surgical Anatomy, and Secretary of the Medical School.

---

* The members of the Faculty, with the exception of the President, are arranged in this list in the order of the time at which their first academic degrees were taken, or the time of their studies, where an academic degree was not taken in course.

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Instructor in Genito-Urinary Surgery.

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Professor of Medical Jurisprudence.

HERBERT WARREN WHITE, M.D., 161 Warren St., Roxbury.
Instructor in Clinical Medicine.

EDWARD L. TWOMBLY, A.B., M.D.,
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Clinical Instructor in Medicine.

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Professor of Otology.

MORTON PRINCE, A.B., M.D., 458 Beacon Street, Boston.
Associate Professor of Neurology.

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Instructor in Clinical Medicine.

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CHARLES R. GRAY, *Superintendent of Buildings.*	Medford.

Proctors.

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ROBERT N. HARTMAN,	West Hall, East.
VIRGIL L. LEIGHTON,	Dean Hall.
CHARLES C. STROUD,	East Hall.

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Assistant Professor of the Latin Language and Literature.

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Assistant in Qualitative Analysis.

LUDWIG DEMETER.
Assistant in Modern Languages.

LIZZIE MAUD CARVILL,
Instructor in Physical Training for Women.

STANDING COMMITTEES OF THE FACULTY.

ADMISSIONS: Professor Maulsby, *Chairman;* the examiners and the Secretary of the Faculty.

PROMOTIONS: Professor Shipman, *Chairman;* Professors Hooper, Brown, Fay, and Durkee.

SCHOLARSHIPS AND AIDS: President Capen, *Chairman;* Professors Shipman and Brown.

PROGRAM: Assistant Professor Start, *Chairman;* Professors Hooper and Brown.

CATALOGUE: Assistant Professor Start, *Chairman;* Professors Hooper and Maulsby.

MEMBERS ON THE PART OF THE FACULTY OF THE ADVISORY COMMITTEE ON ATHLETICS: Professor Harmon (from the Divinity School), *Chairman;* Professor Durkee and Assistant Professor Daniels.

GLEE CLUB: Professor Lewis, *Chairman;* Professor Knight (from the Divinity School) and Assistant Professor Daniels.

FRESHMAN PLANS OF STUDY: Professor Shipman, *Chairman;* Professors Brown and Lewis and Assistant Professor Wade.

BOOKS AND SUPPLIES: Professor Lewis, *Chairman;* Professor Durkee and Mr. Wren.

Requirements for Admiſsion.

Two sets of entrance requirements are for the present open to candidates for admission to the College, the Faculty having decided to continue until further notice the option offered in 1898.

THE NEW REQUIREMENTS.

Every candidate for admission to the College of Letters is required to pass examinations in two groups of subjects, known respectively as the Primary and the Secondary Group. The Primary Group includes certain prescribed subjects in different fields, an elementary training in which is regarded as fundamental for college study. In the Secondary Group a range of options, recognizing the equivalence of different preparatory studies when properly pursued, is presented. This permits the candidate to choose the more advanced subjects to be offered as evidence of capacity, in accordance with the course of study pursued in the preparatory school, and with that which he proposes to pursue in college.

The requirements presuppose a secondary school course of four years of systematic study, in which at least eighteen school periods a week are given to instruction in subjects to be offered as a part of the preparation for college. On this basis the *entrance unit* is taken as representing approximately three recitation periods a week for one year, the full requirement being, therefore, twenty-four entrance units. The time spent is not, however, regarded as an exact measure of the quantity, or range of work, and the entrance unit is held as an average measure.

No person will be admitted to regular standing as a candidate for a degree who has conditions amounting to more than *three entrance units* in the Primary Group, or to more than *six* in both groups, and of these not more than one unit may be in any one primary subject, or in the advanced foreign language offered; but candidates who have passed the requirements of the Primary Group with conditions not exceeding *three entrance units*, and have otherwise complied with the requirements governing the admission of special students, may be admitted as special students, and allowed to take such work in the College as they may be qualified to carry on. These students may, when the College offers subjects covering the ground of their deficiencies, make up such deficiencies by taking the corresponding subject in the College, and so ultimately attain regular standing; but work so taken to fulfil entrance requirements will in no case be counted as a part of the College requirements for a degree.

The values in entrance units affixed to each subject in the following lists of the two groups will enable the candidate to make up a schedule counting the required number of units.

Candidates may, at the discretion of the Committee on Admissions, receive credit of one or more entrance units for additional time spent on accepted subjects. Partial credit in any subject may be given at the discretion of the examiner, but all such credit will be conditioned upon the ultimate completion of the requirement by college work in the same subject, and deficiencies in any subject cannot be offset by credit for preparation based upon less than the minimum amount of work called for in another subject.

Primary Group.*

All candidates for admission to the College are required to pass satisfactory examinations in the following subjects, counting an aggregate of twelve entrance units: —

I. Elementary English. *Three entrance units.*

Note.— No candidate will be accepted in English whose work is notably defective in point of spelling, punctuation, syntax, idiom, or division into paragraphs.

1. *Reading and Practice.*— A certain number of books will be set for reading. The candidate will be required to present evidence of a general knowledge of the subject-matter, and to answer simple questions on the lives of the authors. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number — perhaps ten or fifteen — set before him in the examination paper. The treatment of these topics is designed to test the candidate's power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of a part or the whole of this test, the candidate may be allowed to present an exercise book, properly certified by his instructor, containing compositions or other written work done in connection with the reading of the books.

The books set for this part of the examination will be: —

1899.— Dryden's Palamon and Arcite; Pope's Iliad, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in The Spectator; Goldsmith's Vicar of Wakefield; Coleridge's Rime of the Ancient Mariner; De Quincey's Flight of a Tartar Tribe; Cooper's Last of the Mohicans; Lowell's Vision of Sir Launfal; Hawthorne's House of the Seven Gables.

1900.— Dryden's Palamon and Arcite; Pope's Iliad, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in The Spectator; Goldsmith's Vicar of Wakefield; Scott's Ivanhoe; De Quincey's Flight of a Tartar Tribe; Cooper's Last of the Mohicans; Tennyson's Princess; Lowell's Vision of Sir Launfal.

1901.— George Eliot's Silas Marner; Pope's Iliad, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in The Spectator; Goldsmith's Vicar of Wakefield; Scott's Ivanhoe; Shakespeare's Merchant of Venice; Cooper's Last of the Mohicans; Tennyson's Princess; Coleridge's Rime of the Ancient Mariner.

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* A tabulated summary of all the requirements will be found on page 38.

1902.— George Eliot's Silas Marner; Pope's Iliad, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in The Spectator; Goldsmith's Vicar of Wakefield; Scott's Ivanhoe; Shakespeare's Merchant of Venice; Cooper's Last of the Mohicans; Tennyson's Princess; Coleridge's Rime of the Ancient Mariner.

2. *Study and Practice.*— This part of the examination presupposes the more careful study of each of the works named below. The examination will be upon subject-matter, form, and structure; and will also test the candidate's ability to express his knowledge with clearness and accuracy. The books set for this part of the examination will be: —

1899.— Shakespeare's Macbeth; Milton's Paradise Lost, Books I and II; Burke's Speech on Conciliation with America; Carlyle's Essay on Burns.

1900.— Shakespeare's Macbeth; Milton's Paradise Lost, Books I and II; Burke's Speech on Conciliation with America; Macaulay's Essays on Addison and Milton.

1901.— Shakespeare's Macbeth; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essays on Addison and Milton.

1902.— Shakespeare's Macbeth; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essay on Addison and Milton.

II. One of the Following Languages: *Three entrance units.*

1. ELEMENTARY GERMAN.

The elementary examination will be adapted to the proficiency of those who have studied German in a systematic course of at least four periods a week for *two* years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of ordinary German. In preparation for this examination candidates will be expected to have read, in addition to not less than one hundred and fifty duodecimo pages of simple German, chiefly narrative prose, at least two hundred pages of classical and contemporary prose and verse, to be selected from such works as the following: Riehl, *Kulturgeschichtliche Novellen;* Freytag, *Bilder aus der Deutschen Vergangenheit*, especially *Aus dem Mittelalter* and *Aus dem Jahrhundert des groszen Krieges;* Kohlrausch, *Das Jahr* 1813; Schiller, *Der Dreiszigjährige Krieg*, *Wilhelm Tell*, *Maria Stuart*, *Die Jungfrau von Orleans;* Goethe, *Hermann und Dorothea*, *Egmont*, *Iphigenie;* Lessing, *Minna von Barnhelm.* At least one-half of the amount read should be nineteenth-century prose. It is important that all the translation should be done into clear and idiomatic English.

(*b*) The translation into German of a passage of simple English prose.

> A less extended knowledge of syntax than for advanced German (see Secondary Group) will be presupposed in the selection of the matter for translation.

2. ELEMENTARY FRENCH.

The elementary examination will be adapted to the proficiency of those who have studied French in a systematic course of at least four periods a week for *two* years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of ordinary French. The passages set for translation will be suited to candidates who have read not less than five hundred duodecimo pages of classical and contemporary prose and verse, from the writings of at least five standard authors. It is important that all the translation should be done into clear and idiomatic English.

(*b*) The translation into French of a passage of easy English.

> A less extended knowledge of syntax than for Advanced French (see Secondary Group) will be presupposed in the selection of matter for translation.

3. ELEMENTARY LATIN.

The elementary examination will be suited to the attainment of those who have studied Latin systematically for at least four periods a week for two years. It will consist of two parts, which cannot be taken separately: —

(*a*) The translation at sight into idiomatic English of simple Latin prose, with questions on the ordinary forms and constructions of the language. Candidates will be expected to have read Cæsar, De Bello Gallico I–III, and in addition about twenty pages of Teubner text (*e. g.*, Cæsar, De Bello Gallico, IV, or seven hundred and fifty lines of Ovid, or an equivalent).

(*b*) The translation into Latin of easy sentences, involving only familiar words and idioms.

4. ELEMENTARY GREEK.

The examination will be adapted to the proficiency of those who have studied Greek in a systematic course of at least four periods a week for two years. It will consist of two parts, which cannot be taken separately: —

(*a*) The translation at sight of passages of simple Attic prose.

(*b*) A thorough examination on Book II of Xenophon's Anabasis (about thirty pages, Teubner text), directed to testing the candidate's mastery of the ordinary forms, constructions, and idioms of the language; the test to consist, in part, of writing simple Attic prose, involving the use of such words, constructions, and idioms only as occur in the prescribed portion of Xenophon.

Before taking the elementary examination the candidate should have read, in addition to the usual grammar work, at least four books of Xenophon's Anabasis, or an equivalent.

III. Elementary History. *Three entrance units.*

Two of the following: —

1. The History of Greece to the death of Alexander, with due reference to Greek life, literature, and art.

2. The History of Rome to the accession of Commodus, with due reference to Roman literature and government.

3. The History of England, with due reference to English social and political development.

4. American History, with the elements of Civil Government.

For preparation in each of these subjects the equivalent of one year's work, of not less than three periods a week, is necessary. The examination in each case will require comparison and judgment on the part of the candidate, and not merely the use of memory. The use of at least one good text-book of not less than three hundred pages, collateral reading aggregating not less than five hundred pages, and practice in written work, will be presumed. In addition to the examination, the presentation of written work done in the secondary school and certified by the teacher will be an important part of the evidence of proficiency required by the College. This written work should be presented, when the candidate appears for examination, in the form of a note-book or bound collection of notes, of not less than fifty written pages in each subject offered. Such written work must include practice in some of the following: —

(*a*) Notes and digests of the pupil's reading outside the text-books.

(*b*) Written recitations, requiring the use of judgment and the application of elementary principles.

(*c*) Written parallels between historical characters or periods.

(*d*) Brief studies of topics limited in scope, prepared outside the class-room, and including the use of contemporary material.

(*e*) Historical maps or charts, showing movements of exploration, migration, or conquest, territorial changes, or social phenomena.

IV. Elementary Mathematics. *Three entrance units.*

A knowledge of the metric system, and ability to perform accurately the ordinary processes of arithmetic, are presumed. The examination will include: —

(*a*) Algebra, through quadratic equations, including radical quantities, together with proportion, arithmetical and geometrical progression, and the binomial theorem for positive integral exponents; and

(*b*) Plane Geometry, including the solution of simple original exercises and numerical problems.

Secondary Group.

Bachelors of Arts.* — Every candidate for admission to regular standing in the courses leading to the degree of Bachelor of Arts is required to pass in a satisfactory manner examinations in subjects chosen from this group, aggregating twelve entrance units, including an advanced requirement in at least one foreign language other than the elementary language offered in the Primary Group.

Special Students.— Candidates for admission as special students must comply with the regular requirements of the Primary Group, and must also take such examinations as may be required by the instructor of the major department to which they seek admission. These requirements may be waived, by special vote of the Faculty, in the case of students seeking instruction in a limited range of subjects bearing directly upon the work of a chosen profession.

The subjects and their values in entrance units are as follows: —

I. Advanced English. *One entrance unit.*

One of the following: —

1. A detailed study of a single period of English literature and of not fewer than three authors belonging to it.
2. Old English (Anglo-Saxon): chiefly simple prose and grammar.
3. Chaucer: Prologue, Knight's Tale, and Nonne Preeste's Tale, including vocabulary, inflection, and prosody.

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* The announcement of requirements in the Secondary Group, for candidates for the degree of Bachelor of Science, is deferred.

II. Elementary German (Primary Group, II, 1), when not offered in the Primary Group. *Three entrance units.*

III. Elementary French (Primary Group, II, 2), when not offered in the Primary Group. *Three entrance units.*

IV. Elementary Latin (Primary Group, II, 3), when not offered in the Primary Group. *Three entrance units.*

V. Elementary Greek (Primary Group, II, 4), when not offered in the Primary Group. *Three entrance units.*

VI. Advanced German. *Four* entrance units.*

The advanced examination will be adapted to the proficiency of those who have studied German in a systematic course of at least four periods a week for *three* years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of standard German.

In preparation for this examination candidates will be expected to have read, in addition to not less than one hundred and fifty duodecimo pages of simple German, chiefly narrative prose, at least six hundred pages of classical and contemporary prose and verse, to be selected from such works as those enumerated in Primary Group, II, 1, Elementary German (*a*). At least one-half of the amount read should be nineteenth-century prose.

(*b*) The translation into German of a passage of easy English prose.

> In preparation for this examination candidates will be expected to have acquired a thorough knowledge of accidence, the elements of word-formation, and the principal uses of prepositions and conjunctions; the essentials of syntax, especially the uses of modal auxiliaries and the subjunctive and infinitive modes. Proficiency may also be tested by direct questioning.
>
> It is recommended that the candidate acquire the ability to follow a recitation conducted in German and to answer in that language questions asked by the instructor.

VII. Advanced French. *Four* entrance units.*

The advanced examination will be adapted to the proficiency of those who have studied French in a systematic course of at least four periods a week for three years. It will consist of two parts (which may be taken separately): —

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*An advanced foreign language includes the corresponding elementary, and the credit therefor.

(*a*) The translation at sight of standard French.

The passages set for translation will be suited to candidates who have read not less than one thousand duodecimo pages of classical and contemporary prose and verse, from the writings of at least five standard authors.

(*b*) The translation into French of a passage of English prose.

In preparation for this examination candidates will be expected to have acquired a thorough knowledge of accidence and a familiarity with the essentials of French syntax, especially the uses of modes and tenses, and also with the commoner idiomatic phrases. Proficiency may also be tested by direct questioning.

Careful attention should be paid to pronunciation and to the use of spoken French, that the candidate may at least acquire the ability to follow a recitation conducted in the language and to answer questions asked by the instructor.

VIII. Advanced Latin. *Six* entrance units.*

The advanced examination will be suited to the attainment of those who have studied Latin systematically for at least five periods a week for four years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of passages selected from Cæsar, Vergil, Ovid, and Cicero, with a thorough examination on a prescribed portion of Cicero's speeches (Orations against Catiline, II, III, IV), to test the candidate's mastery of the ordinary forms, constructions, and idioms. Candidates will be expected to have read Cæsar, De Bello Gallico, I–III; Cicero, the speeches against Catiline and on the Manilian Law; Vergil, Æneid, I–V; and in addition not less than twenty pages, Teubner text, of Cæsar (e.g., Book IV), twenty to twenty-five pages, Teubner text, of Cicero (e.g., the orations for Archias and Marcellus), nine hundred lines of Vergil, and fifteen hundred lines of Ovid, to be selected at the discretion of the preparatory teacher. While these readings are preferred, suitable equivalents will be accepted.

The examination in sight reading will be based on the assumption that candidates have read the portions above specified.

(*b*) The translation into Latin prose of a passage of connected narrative, based on one of the prose authors ordinarily read. Moulton's Preparatory Latin Composition or Dodge and Tuttle's Latin Prose Composition will indicate the amount of work required.

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* An advanced foreign language includes the corresponding elementary, and the credit therefor.

A more extended knowledge of grammar will be expected than in the case of Elementary Latin.

Practice in reading at sight, and a general training in the proper methods of reading, should form an important part of the preparation, from the very first. The Roman pronunciation is recommended.

IX. Advanced Greek. *Five* entrance units.*

The advanced examination will be adapted to the proficiency of those who have studied Greek in a systematic course of five exercises a week, extending through at least three school years. The two parts of the examination may be taken separately: —

(*a*) The translation at sight of an average passage of Homer; with questions on ordinary forms, constructions, and idioms, and on prosody.

(*b*) The translation into Attic prose of a passage of connected English narrative. The passage set for translation will be based on some portion of the Greek prose works usually read in preparation for college.

Before taking the examination in Advanced Greek the candidate should have completed at least four books of Xenophon's Anabasis or their equivalent in Attic prose, three books of Homer's Iliad, and one book of Homer's Odyssey. It is strongly recommended that Greek composition accompany all stages of the pupil's preparation, and that the pupil be practised in the reading aloud of Greek from the beginning of his course.

X. Advanced History. *Two entrance units.*

One of the following: —

1. The History of Greece and Rome, for those only who have offered English and American history as primary subjects.

2. The History of England and America, for those only who have offered Greek and Roman history as primary subjects.

3. The History of Europe, taking France or Germany as the central object of study, from the Germanic invasions to 1648.

4. Any one of the primary subjects not offered as such, combined with a year's detailed study of a limited period within that field.

Each of these subjects requires two years' study of not less than three recitation-periods a week, or its equivalent, but 1 and 2 may be divided, and a credit of *one entrance unit* will be given for evidence of proficiency representing one year's work in *one* of the two divisions included under each head.

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* An advanced foreign language includes the corresponding elementary, and the credit therefor.

The remarks in connection with the History requirements of the Primary Group apply to these, but a more thorough knowledge and greater power in combining facts and working out results will be expected. The same classes of tests in examination and written work will be applied, except in the case of the "detailed study of a limited period," on which an individual examination will be given. Especial attention will be paid to the use of English in all work submitted.

XI. Advanced Mathematics. *One entrance unit.*

Two of the following: —

1. Plane Trigonometry, with its applications.
2. Solid Geometry.
3. Elementary Analytic Geometry.
4. Advanced Algebra.

XII. Physics.

(*a*) ELEMENTARY. *One entrance unit.* The examination will be upon such elementary text-books as Gage's, Avery's, or Dolbear's, with emphasis upon Mechanics and Energy.

(*b*) ADVANCED. *Two entrance units.* In addition to (*a*), the candidate is required to present satisfactory evidence, by both certificate and record book, of having completed a year's course of laboratory experiments in Physics of such grade as Hall and Burgin's Text Book of Physics.

XIII. Chemistry.

(*a*) ELEMENTARY. *One entrance unit.* Preparation for this requirement presupposes a course in general inorganic chemistry (the non-metals) of not less than three periods a week for a year, in amount equal to that in An Introduction to the Study of Chemistry, by Ira Remsen, with experimental work in the non-metals equal in amount to that in Experiments in General Inorganic Chemistry, by Frank W. Durkee. The experiments are to be performed by the students. A laboratory note-book, certified by the instructor and containing an exact record of the experimental work, must be presented by the candidate at the time of examination, or must accompany the certificate. After admission to the College, students who have passed in Elementary Chemistry may take Chemistry 1, omitting the laboratory work of the first term; and if the examination is satisfactory, they may omit the entire work of the first term in Chemistry 1.

(*b*) ADVANCED. *Two entrance units.* Descriptive theoretical, inorganic chemistry, as in the elementary requirement, and in addition a course of one year, of at least three periods a week, devoted to the study of the metals, in amount equal to that in Remsen's textbook, mentioned above, and experiments with the metals and their compounds, covering the ground of and equal in number to those in Durkee's experimental manual. Students who have passed the advanced requirement may elect Chemistry 2; but before taking Chemistry 11 and 12 they will be required to take Chemistry 1, omitting the laboratory work, or to pass a satisfactory examination thereon.

XIV. Natural History. *One entrance unit.*

In the natural history subjects the examiners give more weight to the character of work than to time spent; but at least three periods a week for the year must have been given to the subject presented. In order that an adequate opinion may be formed, certificates should give full information as to text-books, character of work done, and relative amount of time devoted to laboratory and to recitation. Laboratory work will count for more than recitation, and certified laboratory note-books should be submitted. In botany and zoology the work should be on structural lines, and little credit will be allowed for time spent in the analysis of plants, or in the identification of birds, insects, etc. The following are the subjects which may be presented for admission, the names of authors of text-books in connection with each being an index of the character of the work expected: —

1. General Biology: Huxley and Martin, Dodge.
2. Botany: Bergen, Bessey, Campbell, Spaulding, Setchell.
3. Zoology: Boyer, Colton, Needham.
4. Physiology: Huxley, Martin, Jenkins (Advanced Course).
5. Geology: Dana, Leconte, Scott, Tarr.

TABULAR VIEW OF REQUIREMENTS FOR ADMISSION.

Candidates for Degree of A.B.

[Boldface figures indicate the credit in entrance units. The italicized parentheses *Prim.* and *Sec.* refer to the fuller statements of each requirement under the headings Primary and Secondary Group on pages 28–37.]

Group.	English.	Foreign Languages.	History.	Mathematics.	Science.
PRIMARY, 12 Units. All subjects required. Conditions amounting to three units allowed, but only one in one subject.	Elementary (*Prim. 1*) **3**.	Elementary (*Prim. 2*) **3**. [One of the following: German, French, Latin, or Greek.]	Elementary (*Prim. 3*) **3**. [Two of the following: Greek, Roman, English, American.]	Elementary (*Prim. 4*) **3**.	
SECONDARY, 12 Units. All subjects optional, but one advanced foreign language other than the Primary Group language must be included. But *one* of the *six* possible conditions may be in the advanced foreign language.	Advanced (*Sec. 1*) **1**. Does not include Elementary English.	Elementary German (*Sec. 2*) **3**. Elementary French (*Sec. 3*) **3**. Elementary Latin (*Sec. 4*) **3**. Elementary Greek (*Sec. 5*) **3**. Advanced German (*Sec. 6*) **4**.* Advanced French (*Sec. 7*) **4**.* Advanced Latin (*Sec. 8*) **6**.* Advanced Greek (*Sec. 9*) **5**.*	Advanced (*Sec. 10*) **2**. [Either i, ii, iii, or iv.] [One-half of i or ii. **1**.] Does not include Elementary History.	Advanced (*Sec. 11*) **1**. [Two of i, ii, iii, and iv.] Does not include Elementary Mathematics.	Physics (*Sec. 12*) (*a*) **1**, (*b*) **2**. *b* includes *a*. Chemistry (*Sec. 13*) (*a*) **1**, (*b*) **2**. *b* includes *a*. Natural History (*Sec. 14*) **1**.

* An advanced foreign language includes the corresponding elementary, and the credit therefor.

THE OLD REQUIREMENTS.

Subjects for Examination.

The subjects in which candidates for admission to the Freshman Class may be examined are given below. The requirements for candidates for the several courses will be found in the schedule of examination groups on pages 44 to 46.

LATIN.

1. LATIN GRAMMAR.—Allen and Greenough's or Harkness's Grammar, including Prosody.

2. CÆSAR.—Gallic War, Books I–IV.

3. CICERO.—Orations against Catiline, for Archias, Marcellus, and the Manilian Law.

4. VIRGIL.—Æneid, Books I–VI.

5. OVID.—Metamorphoses, 2,500 lines.

6. LATIN COMPOSITION.—Collar's Latin Composition, and translation into Latin of a connected passage of English prose, not taken from the text-book, but involving only familiar words and idioms.

Alternatives.—While the foregoing requirements are preferred, equivalents will be accepted; also in place of the last two orations of Cicero and requirement 5, an examination may be taken, if desired, on average passages from the above-named works, not included in the portions prescribed.

GREEK.

7. GREEK GRAMMAR.—Hadley-Allen's or Goodwin's Greek Grammar, including Prosody.

8. XENOPHON.—Anabasis, four books.

9. HOMER.—Iliad, three books.

10. GREEK COMPOSITION.—The translation into Greek of a connected passage of English prose. Woodruff's Greek Composition is recommended as a drill-book.

Alternatives.—In place of requirements 8 and 9, translation at sight of easy passages of the Anabasis and average passages from the Iliad (with a vocabulary of the less-used words).

GERMAN.

11. ELEMENTARY GERMAN.

The Elementary Examination will be adapted to the proficiency of those who have studied German in a systematic course of five periods a week for *one* year. It will consist of two parts (which, however, cannot be taken separately): —

(*a*) The translation at sight of a passage of easy prose containing no rare words.

The passages set for translation will be suited to candidates who have read not less than one hundred and fifty duodecimo pages of simple German, chiefly narrative prose; this amount includes sight reading done in class. It is important that all translation be done into clear and idiomatic English.

(*b*) The translation into German of simple English sentences, to test the candidate's familiarity with elementary grammar.

Elementary grammar is understood to include the conjugation of the weak and the more usual strong verbs, the declension of articles, adjectives, pronouns, and such nouns as are readily classified; the commoner prepositions; the simpler uses of modal auxiliaries; the elements of syntax and word-order. Proficiency may also be tested by direct questioning.

Practice in pronunciation by reading aloud as much as possible from the texts used in the class is recommended; also the writing of German from dictation.

12. INTERMEDIATE GERMAN. — The Intermediate Examination will be adapted to the proficiency of those who have studied German in a systematic course of at least four periods a week for *two* years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of ordinary German.

The remarks under 13 (*a*) apply, merely substituting "*two hundred*" for "*six hundred*" in that program.

(*b*) The translation into German of a passage of simple English prose.

A less extensive knowledge of syntax than for 13 (*b*) will be presupposed in the selection of the matter for translation.

13. ADVANCED GERMAN. — The Advanced Examination will be adapted to the proficiency of those who have studied German in a systematic course of at least four periods a week for *three* years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of standard German.

In preparation for this examination candidates will be expected to have read, in addition to the amount specified under "Elementary (*a*)," at least six hundred duodecimo pages of classical and contemporary prose and verse, to be selected from such works as the following: Riehl, *Kulturgeschichtliche Novellen;* Freytag, *Bilder aus der deutschen Vergangenheit*, especially *Aus dem Mittelalter* and *Aus dem*

Jahrhundert des groszen Krieges; Kohlrausch, *Das Jahr* 1813; Schiller, *Der dreiszigjährige Krieg*, *Wilhelm Tell*, *Maria Stuart*, *Die Jungfrau von Orleans;* Goethe, *Hermann und Dorothea*, *Egmont; Iphigenie;* Lessing, *Minna von Barnhelm.* At least one-half of the amount read should be nineteenth-century prose.

(*b*) The translation into German of a passage of easy English prose.

In preparation for this examination candidates will be expected to have acquired a thorough knowledge of accidence, the elements of word-formation, and the principal uses of prepositions and conjunctions; the essentials of syntax, especially the uses of modal auxiliaries and the subjunctive and infinitive modes. Proficiency may also be tested by direct questioning.

It is recommended that the candidate acquire the ability to follow a recitation conducted in German and to answer in that language questions asked by the instructor.

FRENCH.

14. ELEMENTARY FRENCH.

The Elementary Examination will be adapted to the proficiency of those who have studied French in a systematic course of five periods a week for *one* year. It will consist of two parts (which, however, cannot be taken separately): —

(*a*) The translation at sight of easy prose.

The passages set for translation will be suited to candidates who have read not less than two hundred duodecimo pages from the works of at least three different authors; this amount includes sight-reading done in class. Not more than half the reading should be from works of fiction. It is important that all translation be done into clear and idiomatic English.

(*b*) The translation into French of English sentences, or a short, connected passage, to test the candidate's familiarity with elementary grammar.

Elementary grammar is understood to include the conjugation of regular and the more usual irregular verbs, such as *aller*, *tenir*, *pouvoir*, *savoir*, *voir*, *vouloir*, *dire*, *faire*, and those belonging to the classes represented by *dormir*, *ouvrir*, *connaître*, *conduire*, *craindre;* the forms and positions of the personal pronouns; the uses of other pronouns and of possessive, demonstrative, and interrogative adjectives; the inflection of nouns and adjectives for gender and number, except rare cases; the commoner uses of the article; and the partitive constructions. Proficiency may also be tested by direct questioning.

Pronunciation should be carefully taught, and the pupil should be accustomed to hear and understand the spoken language. The writing of French from dictation is also recommended.

15. INTERMEDIATE FRENCH.

The Intermediate Examination will be adapted to the proficiency of those who have studied French in a systematic course of at least four periods a week for *two* years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of ordinary French.

The remarks under 16 (*a*) apply, merely substituting "*three hundred*" for "*eight hundred.*"

(*b*) The translation into French of a passage of easy English.

A less extended knowledge of syntax than for 16 (*b*) will be presupposed in the selection of matter for translation.

16. ADVANCED FRENCH.

The Advanced Examination will be adapted to the proficiency of those who have studied French in a systematic course of at least four periods a week for *three* years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of standard French.

The passages set for translation will be suited to candidates who have read, in addition to the amount specified under "Elementary (*a*)" not less than eight hundred duodecimo pages of classical and contemporary prose and verse from the writings of at least five standard authors.

(*b*) The translation into French of a passage of English prose.

In preparing for this examination candidates will be expected to have acquired a thorough knowledge of accidence and a familiarity with the essentials of French syntax, especially the uses of modes and tenses, and also with the commoner idiomatic phrases. Proficiency may also be tested by direct questioning.

Careful attention should be paid to pronunciation and to the use of spoken French, that the candidate may at least acquire the ability to follow a recitation conducted in the language and to answer questions asked by the instructor.

MATHEMATICS.

17. ALGEBRA, through quadratic equations, including radical quantities, together with proportion, arithmetical and geometrical progression, and the binomial theorem for positive integral exponents.

18. PLANE GEOMETRY.

19. SOLID GEOMETRY.

HISTORY.

20. (*a*) ANCIENT HISTORY (Greece and Rome), or
(*b*) MEDIÆVAL AND MODERN EUROPEAN HISTORY, or
(*c*) THE HISTORY OF ENGLAND AND THE UNITED STATES.

The following text-books are recommended, and will indicate the amount of preparation required: (*a*) and (*b*), Sheldon's Outlines of General History; (*a*), for Ancient History, Oman's or Smith's (smaller) Greece, Allen's Roman People; for Mediæval and Modern Europe, Myers's General History; for the History of England and the United States, Montgomery's Leading Facts in English History, Fiske's History of the United States for Schools, Johnston's History of the United States for Schools, Montgomery's Students' American History, or Channing's Students' History of the United States. The use of such manuals as Bacheler's American History (Library method) and Getchell's Study of Mediæval History by the Library Method is helpful.

ENGLISH.

21. ENGLISH.

Note.— No candidate will be accepted in English whose work is notably defective in point of spelling, punctuation, syntax, idiom, or division into paragraphs.

1. *Reading and Practice.*— A certain number of books will be set for reading. The candidate will be required to present evidence of a general knowledge of the subject-matter, and to answer simple questions on the lives of the authors. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number — perhaps ten or fifteen — set before him in the examination paper. The treatment of these topics is designed to test the candidate's power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of a part or the whole of this test, the candidate may be allowed to present an exercise book, properly certified by his instructor, containing compositions or other written work done in connection with the reading of the books.

The books set for this part of the examination will be: —

1899.— Dryden's Palamon and Arcite; Pope's Iliad, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in *The Spectator;* Goldsmith's The Vicar of Wakefield; Coleridge's The Ancient Mariner; De Quincey's The Flight of a Tartar Tribe; Cooper's The Last of the Mohicans; Lowell's The Vision of Sir Launfal; Hawthorne's The House of the Seven Gables.

For lists for 1900 and 1901, see the New Requirements, Elementary English.

2. *Study and Practice.*— This part of the examination presupposes the more careful study of each of the works named below. The examination will be upon subject-matter, form, and structure; and will also test the candidate's ability to express his knowledge with clear-

ness and accuracy. The books set for this part of the examination will be: —

1899.— Shakespeare's Macbeth; Milton's Paradise Lost, Books I and II; Burke's Speech on Conciliation with America; Carlyle's Essay on Burns.

For lists for 1900 and 1901, see the New Requirements, Elementary English.

SCIENCES.

22. PHYSICS.— The requirement in Physics is an acquaintance with the subject as treated in Avery's or Gage's work, or any other of similar grade, with special attention to Mechanics and ability to work out numerically problems in that department.

23. CHEMISTRY.— Remsen's Briefer Course or its equivalent.

24. NATURAL HISTORY.— Any two of the four subjects: Botany, Zoölogy, Physiology, or Geology. The amount required in each is essentially covered by any good text-book for secondary schools. In Botany and Zoölogy, laboratory work is of more importance than the study of the text-book. As illustrating the character of preparation required, the following books may be mentioned: In Botany, Bessey's Briefer Course, Campbell's Structural and Systematic Botany, or Spaulding's Introduction to Botany; in Zoölogy, Colton's Practical Zoölogy; in Physiology, Huxley's Elementary Physiology, Jenkins's Advanced Lessons in Human Physiology, or Martin's Human Body, briefer course; in Geology, Dana's Geological Story Briefly Told, or Leconte's Elements of Geology.

25. FREEHAND DRAWING.— Outline drawing from simple casts, geometric models, and groups of models.

Examination Groups.

FOR COURSES LEADING TO DEGREE OF A.B.

Candidates for courses leading to the degree of Bachelor of Arts must take their examination in the subjects comprised in one of the two following groups: —

Group I.

LATIN, 1, 2, 3, 4, 5, and 6.
GREEK, 7, 8, 9, and 10.
GERMAN, 11, or FRENCH, 14.
MATHEMATICS, 17 and 18.
HISTORY, 20.
ENGLISH, 21.

Group II.

Latin, Mathematics, History, and English, as in I.

German, 11 and 13. French, 14.	or	French, 14 and 16. German, 11.

This group differs from Group I. in the substitution for Greek of advanced work in Modern Languages.

FOR COURSES LEADING TO DEGREE OF Ph.B.

Candidates for courses leading to the degree of Bachelor of Philosophy must take their examination in the subjects comprised in one of the two following groups : —

Group III.

Latin, Mathematics, History, and English, as in I.

German, 11 and 12. French, 14.	or	French, 14 and 15. German, 11.

Group IV.

Mathematics, History, and English, as in I.

German, 11 and 13. French, 14.	or	French, 14 and 16. German, 11.	or	German, 11 and 12. French, 14 and 15.

Physics, 22. Chemistry, 23. Natural History, 24.	To be accepted, these subjects must represent an aggregate of at least three years of study, with an average of four periods a week.

[Latin, 1, 2, 3, and in 4, three books of the Æneid, or their equivalent, will be accepted in place of one intermediate Modern Language; that is German, 11 and 12, or French, 14 and 15.]

Groups III. and IV. are offered to meet the needs of graduates of the English courses, so-called, in the best high schools, who may desire to enter upon college study looking toward a degree. It will be seen, by reference to the appropriate numbers in the preceding subject list, that Group III. accepts a smaller amount of preparation in the modern languages than that required for entrance through Group II. to courses leading to the degree of Bachelor of Arts. Group IV. allows the substitution for Latin of an increase over the requirement of Group III. in modern languages, and of elementary work in three scientific subjects.

FOR COURSES LEADING TO DEGREE OF S.B.

Group V.

MATHEMATICS, HISTORY, and ENGLISH, as in I.
LATIN, 1, 2, and in 4, four books of the Æneid; or
GERMAN, 11 and 12; or
FRENCH, 14 and 15.
SCIENCE: One year's work, with a weekly average of at least three periods of class work, in one of the following: Chemistry, Physics, Physiology, Botany, Zoölogy, Geology, Drawing.

This examination group admits to the courses leading to the degree of Bachelor of Science: the General Course in Science, the Special Courses in Biology and Chemistry, and the Medical Preparatory Course. These courses are intended primarily for graduates of English high schools who have a special object before them lying along the lines laid out for these courses.

FOR CANDIDATES FOR ENGINEERING COURSES.

Candidates for the courses leading to the degree of Bachelor of Science in Engineering will be required to take the subjects comprised in

Group VI.

MATHEMATICS, 17, 18, and 19.
GERMAN, 11, or FRENCH, 14.
ENGLISH, 21.
DRAWING, 25.

GENERAL INFORMATION RELATING TO ADMISSION.

The regular examination for admission begins on the day after Commencement, and continues through the two following days. A second examination is held on the Tuesday, Wednesday, and Thursday preceding the beginning of the College year. The examination begins at 9 o'clock A. M., on each of these days. The assignment of examination subjects appears in the Calendar, pages 4 and 5.

At the regular examination in June those who will be candidates for admission to the Freshman class one or two years later may present themselves for examination in the subjects of the Primary Group, and others upon which their teachers may certify that they are adequately prepared, and will receive certificates of the subjects upon which they pass, such subjects to be credited to them when they appear for their final examinations.

For admission to advanced standing an examination must be well sustained, both in the preparatory studies and in the studies in which the candidate desires credit for advanced work.

Students entering on examination are required to register at the office of the Registrar before taking their examinations. Those entering on certificate are required to register before noon on the opening day of the College year.

A fee of five dollars must be paid in advance by every candidate who is examined at any other place than the College.

Admission by Certificate. — Certificates covering the preparatory work of candidates for admission are received in lieu of examination from schools that have filed with the Secretary of the Faculty statements of their courses of study and of their teaching force, and have been approved by the Faculty. Each certificate must cover a preparatory course of not less than four full years of school work, which must have been in approved schools, though not necessarily continuously in one school. It must state the time devoted to each subject offered for admission, the standing of the student according to the school record, and such facts in regard to method and means of instruction as the department examiners may call for.

Certificates should be in the hands of the Registrar of the College at least one month before the opening of the College year, and any certificate from a school not on the approved list of the College should be accompanied by the necessary information in regard to courses and facilities of instruction, written upon the official blank of the College, in order to be considered by the Committee on Admission.

Blank forms for certificates, and for application from secondary schools, will be sent upon application to the *Registrar of the College*, *Tufts College*, *Massachusetts*.

Requirements for Degrees.

Students may enter upon their work in the courses in Liberal Arts as candidates for the degree of Bachelor of Arts, or for that of Bachelor of Philosophy, or for that of Bachelor of Science, according to the examination group upon which they are admitted to the College. In any case the ground of promotion and of graduation is the intellectual attainment of the individual student, not a fixed requirement of a certain number of years of study. Candidates for the degree of Bachelor of Philosophy will be necessarily somewhat more limited in their selection of subjects because of the nature of their preparation, while the courses leading to the degree of Bachelor of Science consist mainly of prescribed work on special lines. Those who have fulfilled the requirements for the degree of Bachelor of Philosophy may obtain the degree of Bachelor of Arts on the satisfactory completion of six term hours of additional work in approved elective subjects.

The plan of study offered to the student is at once liberal, controlled, and elastic. It combines the requirements of the general culture, which is the prime object of the undergraduate college course, with an opportunity for the development of the individual on the lines to which he is especially adapted, and for preparation for university and professional study. Throughout the courses students have large liberty in choosing their work, but they are brought into personal advisory relations with the major instructors, who arrange and guide a considerable portion of their work after its general direction has been determined. A reasonable amount of guided specialization is thus provided for, while the personal relations of the student with the major instructor form a valuable adjunct to the routine work of instruction in developing the interest and the character of the students. All work actually accomplished by the student in regular standing counts toward the attainment of the degree. The period within which the degree may be attained depends upon the industry and ability of the individual student.

SYNOPSIS OF THE REQUIREMENTS.

For A. B. and Ph. B.

[NOTE.—Each department offers a series of subjects for study. The unit for indicating the requirements is the *term hour*, which represents the number of program hours per week required in each subject, expressed for a period of one term. Thus a subject calling for three hours a week, for one term, represents a requirement of three term hours; if it calls for three hours a week for one year, or two terms, the requirement in that subject is six term hours.]

(1) The requirement for the degree of Bachelor of Arts or Bachelor of Philosophy is the satisfactory completion of subjects aggregating one hundred and twenty-eight term hours.

(2) The program of prescribed studies is as follows:—

	TERM HOURS.
LANGUAGES (Latin, Greek, French, German; each student to take *three*)	18
ENGLISH (Rhetoric, Composition, Themes)	10
MATHEMATICS	6
PHYSICAL SCIENCE (Physics, Chemistry, Biology; each student to take *one*)	6
MENTAL AND MORAL SCIENCE (Philosophy, History, Political Science; each student to take *one full or two half* subjects)	6
PHYSICAL TRAINING	2
A total of	48

The requirements are by groups, not by special subjects, and in each group except English and Mathematics some choice is allowed the student.

The program of the student in the first year will be made up from the prescribed groups, except by special permission of the Faculty.

(3) At the end of the first year the student is required to choose a major department, in which he must complete, before graduation, work amounting to eighteen term hours. He may offer work already done in that subject in some one of the prescribed groups as a part of the eighteen hours which he is required to give to his major department, but no subject indi-

cated in the catalogue as elementary can be counted in such work. The major department and the plan of work for the first half year must be reported by the student, in the proper form, upon registration on the opening day of the college year.

(4) Acting under the advice of the instructor in his major department, the student will make up a program of eighteen term hours in collateral subjects; that is, subjects tending to strengthen and assist his work in his major. The student's major instructor is to be his official adviser on general matters relating to his college course.

(5) The remaining forty-four term hours of the required aggregate are to be made up by the free election of the student from the various subjects offered, limited only by special restrictions applied to certain subjects.

(6) Upon the satisfactory completion of the aggregate requirement, the student is entitled to receive the Bachelor's degree, but no student shall be granted a degree in less than four years of residence, unless he shall have obtained Grade B as an average for his entire work.

Summary.

	TERM HOURS.
Prescribed work	48
Major department	18
Collateral subjects	18
Free elective	44
For S. B.	128

The requirement for the degree of Bachelor of Science is the satisfactory completion of one hundred and twenty-eight term hours, according to the programs for the General Science Course, Special Courses in Biology and Chemistry, and Medical Preparatory Course, elsewhere described. The highly specialized character of these courses leaves only a small allowance of time outside the prescribed subjects, but there is a limited amount of time at the disposal of the student for free election.

The requirements for the degree of Bachelor of Science in Engineering are given in connection with the detailed statement of the Department of Engineering.

Departments of Instruction.

MAJOR DEPARTMENTS.

Any of the following may be chosen as major departments: —

ENGLISH.
GERMAN.
FRENCH.
LATIN.
GREEK.
PHILOSOPHY.
HISTORY.
POLITICAL SCIENCE.
MATHEMATICS.
PHYSICS.
CHEMISTRY.
BIOLOGY.
ENGINEERING.

In the subjoined statement of the work done in the different departments, the name of the major instructor is that given at the head of each department that offers a major course. In other cases the name is given of the instructor in general charge of the department. When two names appear, major students will be guided by the usage of the department. Names of instructors in charge of each subject are appended to the brief statement of the subject itself.

Bracketed subjects will not be given during the current year. In many cases alternates are indicated, which fill their places in the program for this year. All subjects continue through the year unless otherwise indicated.

Subjects marked by a * will not be counted for honors. Subjects marked by a ** will be counted for honors only when special conditions are complied with.

A tabular view of the program of hours assigned to the subjects in the courses in Liberal Arts follows the subjoined statements of the several departments. No two subjects assigned to the same hour can be taken simultaneously by any student.

ENGLISH.

PROFESSOR SHIPMAN AND PROFESSOR MAULSBY.

The work of the department includes the theory and practice of composition and the study of literature.

Composition is required to the middle of the third year, or ten term hours. In the first year it is chiefly extemporaneous. After one term, those who have attained Grade B may substitute a daily theme course, or may postpone composition to the following year. The more formal study of the subject begins with the second year, and includes with theory a large amount of practice. In both years, and throughout the course, frequent consultations with each writer are arranged. On completing the work of the second year, the student has an option for one term, and thereafter free election. Composition as elective is more closely connected with the study of literature, and in such forms as essay, story, oration, poem, is indicated in the following scheme of subjects.

In the study of literature, intelligent appreciation of the author's thought and of his characteristic mode of expression is the immediate result held in view. Biographical and philological details, the effect of environment, and the mass of published criticism that clusters about the great names are not neglected, although given a subordinate place. The method at first pursued demands attentive reading of more than can be considered in the class-room, frequent written expression of literary judgments, and occasional private investigation of topics not otherwise treated. The library contains multiple copies of many of the authors read. In the more advanced classes the seminary method is employed. Whether or not the period studied makes special study of linguistic forms necessary, in all subjects the thought-content is regarded as of prime importance. Besides, in all literary subjects but the most elementary, composition is required as an essential part of the work.

SUBJECTS.

*1. Composition. Lectures, discussion of papers. *One hour a week for the first year. Friday at* 2. PROFESSOR SHIPMAN.

*1 B. Daily Composition. Open to those who have attained Grade B in English 1. *Tuesday at* 2 (*second half-year*).
PROFESSOR SHIPMAN.

*2. The Theory and Practice of Composition. Lectures and readings; criticism and discussion of themes. *Monday*, *Wednesday*, *and Friday at* 11.45. MR. WHITTEMORE.

3. The aim in English 3 is to emphasize the fundamental function of expository writing, and to aid the student to gain clearness, ease, and rapidness of expression. The written work consists of five themes each week. *Monday at* 9.45 (*first half-year*).
MR. WHITTEMORE.

This subject is open only to students who have attained at least Grade B in English 2.

*4. Three kinds of writing, narration, description, and exposition are discussed, and specimens from eminent authors are studied. The written work consists of two themes each week. *Monday at* 8.45 (*first half-year*). MR. WHITTEMORE.

*5. Argumentative Composition, a study of its requirements as observed by successful writers, with constant practice by the student. The written work consists of two themes or their equivalent each week. *Two hours a week* (*first half-year*). PROFESSOR SHIPMAN.

*6. Essays, with special attention to the construction of extended discourse. Weekly papers, plans, free discussion, individual criticism. *Two hours a week* (*first half-year*), *or two hours a week* (*second half-year*). PROFESSOR SHIPMAN.

[Subjects 1, 1 B, and 2, with 3, 4, 5, or 6, constitute the prescribed work in English.]

7. English Versification. Study of poetic forms and practice in poetic composition. *Wednesday at* 10.45. PROFESSOR MAULSBY.

*11. General View of English Literature. Lectures, examinations, and required reading. *Monday at* 10.45.
MR. EARLE, ASSISTANT PROFESSOR WADE,
PROFESSOR KNIGHT, PROFESSOR MAULSBY.

**12. American Literature. Lectures, required reading, special topics, essays. *Monday*, *Wednesday*, *and Friday at* 3.
PROFESSOR MAULSBY.

13. The English Romantic Movement in Poetry. Lectures, reading, brief critical essays. *Monday*, *Wednesday*, *and Friday at* 2 (*first half-year*). MR. WHITTEMORE.

14. Poets of the Victorian Era. Lectures, reading, individual

treatment of authors not studied in the class. *Monday*, *Wednesday*, *and Friday at* 2 (*second half-year*). PROFESSOR MAULSBY.

[15. Prose of the Nineteenth Century. Lectures, reading, brief critical essays. *Thursday at* 2. MR. WHITTEMORE.]

[16. Browning. Poems, collateral reading, lectures, brief critical essays. *Two hours a week* (*second half-year*). MR. WHITTEMORE.]

17. Shakespeare. Reading of selected plays, lectures, examinations, essays. *Monday*, *Wednesday*, *and Friday at* 9.45 (*first half-year*). PROFESSOR MAULSBY.

18. Shakespeare. Reading of selected plays, lectures, brief critical essays. *Monday*, *Wednesday*, *and Friday at* 9.45 (*second half-year*). MR. WHITTEMORE.

English 18 can be taken only after 17.

[19. Chaucer. Study of forms and pronunciation, reading of selections from the Canterbury Tales and the minor poems, essays. *Monday*, *Wednesday*, *and Friday at* 9.45. PROFESSOR MAULSBY.]

English 19 may be dropped at the end of the first half-year.

*20. Anglo-Saxon. Study of the grammar, and the reading of prose selections, during the first half-year. The subject may be continued through the second half-year, when the whole of Beowulf may be read. *Tuesday*, *Thursday*, *and Saturday at* 10.45. MR. EARLE.

21. Advanced Anglo-Saxon. Chronological development of Anglo-Saxon prose and poetry. *Three hours for the year.* MR. EARLE.

*22. Historical English Grammar. Brief history of the English language. The development of English sounds and their written characters. The growth of the several parts of speech and of their inflections. *Wednesday at* 8.45. MR. EARLE.

23. The Short Story. Examples, and composition. *Two hours for the second half-year.* MR. WHITTEMORE.

24. History of English Criticism. Discussion, examinations, essays. *Three hours for the second half-year.* PROFESSOR SHIPMAN.

25. Development of a Literary Form, as (*a*) the drama, (*b*) the novel, (*c*) the lyric.

(*c*) Development of the English Lyric. *Friday at* 10.45.
PROFESSOR MAULSBY.

26. Special Research. Any student sufficiently advanced may pursue a special line of inquiry in the investigation of some restricted field of British or American literature, under the direction of the department.

ORATORY.

PROFESSOR MAULSBY.

It is intended that the study of oratory shall be of practical benefit to the general student, whether or not he looks to professional pursuit of the art. Exercises are practised in correct breathing, the production of tone, and in gesture; moreover, individual faults are pointed out and remedies suggested. The work in Oratory 1 aims at securing reading that shall be intelligent, natural, and forcible. In this subject the principles that underlie all successful public speaking are indicated, and, so far as possible, these principles are applied in practice. In the advanced subjects opportunity is offered for specializing, during two successive years, in either dramatic reading or in senatorial oratory. In connection with oratory as a means of persuasion, it is urged that students take related subjects in English composition, as English 5.

SUBJECTS.

1. The Principles of Oratory Exemplified in Practice. Class exercises in vocalization and gesture. *Thursday at* 3.

2. Study of Selections from Shakespeare and Browning. Individual presentation of standard poetry and prose. *Tuesday at* 2.

3. Study of Selections from American Orators. Individual presentation of forensics. *Wednesday at* 2.

4. Dramatic Rendering. Study and delivery of scenes from the standard drama. The possible public presentation of a play. *Tuesday at* 3.

5. Formal Oral Debate. The practice of debate, under the usual parliamentary forms of a deliberative body. The possible presentation of a public debate. *Thursday at* 2.

GERMAN.

PROFESSOR FAY.

The aim of the department is twofold, according as the student has entered with the elementary or the advanced requirement. In the former case it is to lead him in the briefest possible time to such a mastery of the language as will enable him to use it as a source of information, and medium of literary culture; where this preliminary work has already been done, to afford this literary culture itself, together with such historical and linguistic knowledge as may properly accompany advanced work in a literary department. Hence, in the elementary subjects, facility and accuracy of translation are sought by means of copious reading and careful grammatical drill; in the intermediate year the classic masterpieces are read for their own sake, together with such historical material as will throw light upon the epoch in which they were written or with which they deal; in the advanced work the systematic study of the history of the literature is undertaken, and opportunity is afforded for acquiring a knowledge of the earlier literary forms. Composition forms an important element in instruction and in the practice of the language. Though no attempt is made to teach the student to speak the language, he is trained from the outset to hear and to understand it when spoken, chiefly for the sake of the reflex influence of such practice upon pronunciation.

Six consecutive subjects are offered. While it is not impossible to take them all within the four college years, the scheme is based upon the supposition that the earlier ones will have been taken in the preparatory school.

SUBJECTS.

*1. Elementary German. Joynes-Meissner Grammar, with Lewis's Exercises; Bernhardt's Im Zwielicht, II.; Riehl, Burg Neideck; Buchheim's Balladen und Romanzen. *Tuesday*, *Thursday*, *and Saturday at* 9.45. PROFESSOR FAY.

German 1 is the equivalent of the entrance requirement in elementary German, and should be taken in the Freshman year by all who enter with a condition in that subject.

*2. Intermediate German. Reading, Grammar, and Composition. Review of grammatical principles, especially with reference to syntax. Reading of modern prose and poetry, such as Riehl, Der Fluch der Schönheit; Freytag, Aus dem Staat Friedrichs des Grossen; Scheffel, Der Trompeter von Säkkingen. *Tuesday*, *Thursday*, *and Saturday at* 8.45. PROFESSOR FAY AND MR. DEMETER.

German 2, when taken by entering students, presupposes two years' study of the language in the preparatory school. It is possible for a student who has done with distinction the work of German 1, and who shall do a prescribed amount of outside reading, to omit this subject and enter German 3.

**3. First half-year. Course for the rapid reading of modern prose. Second half-year. Course introductory to the classic authors. Lessing, Minna von Barnhelm; Schiller, Die Jungfrau von Orleans; Goethe, Hermann und Dorothea. *Monday, Wednesday, and Friday at* 9.45. PROFESSOR FAY AND MR. DEMETER.

For entering students German 3 presupposes three years of preparatory study. It may be taken as a half-subject by more advanced students.

**3 B. German Composition. First half-year: Stein's Exercises, original themes, dictation, conversation. Second half-year: Buchheim's Exercises, with more advanced work in original themes, oral and written translation into German, and conversation. This course is offered to students who have satisfactorily completed German 2 or its equivalent. *Monday and Friday at* 10.45. MR. DEMETER.

4. Schiller and Goethe. Lyrics; Egmont; Maria Stuart; Wallenstein; with collateral reading in historical prose. *Tuesday, Thursday, and Saturday at* 11.45. PROFESSOR FAY.

German 4 is open to entering students who have had four years of preparatory study, or who, having passed with distinction the entrance examination in Advanced German, also pass with credit a special examination in advanced grammar and sight translation.

5. Advanced Course in Lessing and Goethe. Nathan der Weise, Emilia Galotti, Laocoön; Tasso, Iphigenie, Faust; with collateral reading. *Monday, Wednesday, and Friday at* 10.45. PROFESSOR FAY.

6. History of German Literature: Vilmar, Kluge, with illustrative works for leading epochs. Course in Middle High German: Das Nibelungenlied; Walther Von der Vogelweide. A thesis is required of candidates for honors. *Tuesday, Thursday, and Saturday at* 8.45. PROFESSOR FAY.

FRENCH.

PROFESSOR FAY AND PROFESSOR LEWIS.

The plan and scope of the department are, in general, the same as those of the German Department, to the statements of which the student is referred. Six consecutive subjects are offered.

*1. Elementary French. The essentials of grammar, with composition; Grandgent's Short Grammar, with College Exercises; a

French Reader; reading of short works of modern authors in prose and verse. *Tuesday, Thursday, and Saturday at* 9.45.
PROFESSOR LEWIS AND MR. EARLE.

French 1 is the equivalent of the entrance requirement in Elementary French, and should be taken in the Freshman year by all who enter with a condition in that subject.

*2. Intermediate French. Reading, Grammar, and Composition. Review of grammatical principles, especially with reference to syntax; exercise in composition; short weekly themes; reading of modern fiction and drama, such as Merimée's Colomba and Sandeau's Mademoiselle de la Seiglière. *Tuesday, Thursday, and Saturday, at* 8.45.
PROFESSOR LEWIS AND MR. EARLE.

French 2, when taken by entering students, presupposes two years' study of the language in a preparatory school. It is possible for a student who has done with distinction the work of French 1 in college, and who shall do a prescribed amount of outside reading, to omit this subject and enter French 3.

**3. First half-year. Course for the rapid reading of modern authors: Thiers, Taine, de Vigny. Second half-year. Introductory work in Seventeenth Century Classics: Corneille, Racine, Molière, Boileau, with collateral reading concerning the period. Review of grammatical principles in Ploetz's Nouvelle Grammaire Française, and occasional brief themes. *Monday, Wednesday, and Friday at* 8.45.
PROFESSOR LEWIS AND MR. EARLE.

For entering students, French 3 presupposes three years of preparatory study. It may be taken as a half-subject by more advanced students.

4. First half-year. Literature and Manners of the Seventeenth Century. Crane's Société Française au XVII^{e} Siècle; Molière, Les Précieuses Ridicules, Les Femmes Savantes; Saint-Simon; Madame de Sévigné. Second half-year. Literature of the Eighteenth Century. The Novel, the Drama, Philosophical Essays. *Monday, Wednesday, and Friday at* 8.45.
PROFESSOR FAY.

French 4 is open to entering students who have had four years of preparatory study of the language, or who, having passed with distinction the entrance examination in Advanced French, also pass with credit a special examination in advanced grammar, composition, and sight translation. Juniors and Seniors whose major department is French may be permited to take 4 and 5 in the same year.

5. Literature of the Nineteenth Century. The Drama, Poetry, the Novel, Criticism; Chateaubriand, Hugo, Lamartine, de Musset,

Balzac, Sainte-Beuve, and selections from contemporary authors. *Monday, Wednesday, and Friday at* 3.

PROFESSOR FAY AND PROFESSOR LEWIS.

[6. Demogeot, Littérature de la Langue Française, with illustrative texts for principal epochs. Course in Historical Grammar and Old French: Brunot, Grammaire Historique de la Langue Française, Bartsch, Chrestomathie de l'Ancien Français. A thesis is required of candidates for honors. *Monday, Wednesday, and Friday at* 11.45.

PROFESSOR FAY.]

ITALIAN.

PROFESSOR FAY.

The work offered in Italian is open to those only who have had two years of college study in French. With such previous training, the student is able to acquire with rapidity a reading knowledge of the language, and thus to become acquainted within the year with the characteristics of contemporary and classic literature.

SUBJECT.

1. Grandgent's Grammar and Composition; Bowen's Reader; De Amicis; Maffei, Merope; Dante, Divina Commedia (Scartazzini's edition). *Tuesday, Thursday, and Saturday at* 10.45.

PROFESSOR FAY.

LATIN.

ASSISTANT PROFESSOR DENISON.

The study of the Latin language and literature is an important help to the attainment of the highest culture, as well as to the development of scientific habits of thinking. With these facts in view the department will endeavor to create an adequate appreciation of the masterpieces of the language, based on an accurate knowledge of details. It is believed to be quite possible for students, with proper direction and application, to acquire the power to read, understand, and enjoy the language without translation, and as much time as possible is devoted to reading with this end in view. The department aims to give attention not only to the literature, but also to the history, archæology, art, public and private life, and religion of the Roman people, as well as to the formation and structure of their language and its relation to other languages. Due emphasis is laid on the connection between ancient and modern life and thought. The various reading courses are supplemented by lectures on appropriate topics. Latin 1, 2, either 3 or 4, and two or more composition courses are offered every year, and a number of other subjects, such as Latin 8, 9, and 10, will be given with due announcement, at intervals of two or more years. Courses 3, 4, 7, and all designated by numbers above 7, are suitable for graduate students. Such students will, however, be expected to do an extra amount of work in these subjects, and may be required to prepare theses or make other special investigations.

SUBJECTS.

*1. Livy (Books I and II, or XXI and XXII); Cicero (De Senectute, or De Amicitia); Horace (Odes and Epodes); reading at sight; lectures on suitable topics. *Tuesday, Thursday, and Saturday at* 10.45.

Latin 1 is introductory to all later subjects.

2. Terence (one or more plays); Cicero (selections from the Tusculan Disputations); Tacitus (Agricola and Germania, or selections from the Histories); Pliny (selected letters); reading at sight; lectures on suitable topics. *Tuesday, Thursday, and Saturday at* 9.45.

Open to students who have completed Latin 1.

3. Tacitus (selections from the Annals); Suetonius (selections); Juvenal (principal Satires); Martial (selected Epigrams to be read in connection with Juvenal); reading at sight. These authors will be studied from a literary point of view, and with special reference to the information they afford in regard to the history and life of the early Empire. *Monday, Wednesday, and Friday at* 11.45.

[4. Horace (Satires and Epistles); Cicero (De Oratore, or Brutus) or Tacitus (Dialogus); Plautus (two plays); readings from Latin prose and verse to illustrate Roman life and literature; reading at sight. *Monday, Wednesday, and Friday at* 11.45.]

Subjects 3 and 4 will be given in alternate years, and are designed for those who have completed Latin 2, or its equivalent. Subject 3 is offered in 1898–99.

*5. Latin Composition. Translation of English narrative. This should be taken in connection with Latin 1. *One hour a week for the year, to be arranged with the instructor.*

6. Latin Composition. *One hour a week for the year, to be arranged with the instructor.*

This subject is open to students who have completed Latin 5, and may be taken most profitably in connection with Latin 2. It is a necessary preliminary to competition for the Latin Composition Prize. Particular attention will be paid to Latin idiom.

7. Latin Composition. Original essays in Latin. Study of selections of prose as models. Reading at sight. *One hour a week for the year, to be arranged with the instructor.*

[8. Catullus and the Elegiac Poets.]

[9. The Private Life of the Romans.]

10. Latin Epigraphy. An introduction to the study of Latin inscriptions. Lectures; reading and interpretation of a large number of inscriptions. Egbert's Latin Inscriptions ($3.50) will be indispensable. *Three hours a week (first half-year), to be arranged with the instructor.*

[Not to be given in 1899–1900.]

11. The Correspondence of Cicero. The letters chosen will illustrate particularly the private life and character of Cicero. Open to students who have completed Latin 1. *Three hours a week (second half-year), to be arranged with the instructor.*

[Not to be given in 1899–1900.]

[12. Vergil (Georgics and Bucolics); Lucretius (selections). Open to students who have completed Latin 1. *Three hours a week (first half-year), to be arranged with the instructor.*]

[To be given in 1899–1900.]

[13. The Religion of the Romans. Lectures, collateral reading, and investigations by the students. Some facility in the use of German is essential. Reading in some Latin author. Open to students who have completed Latin 1. *Three hours a week (second half-year), to be arranged with the instructor.*]

[To be given in 1899–1900.]

GREEK.

Professor Schneider and Assistant Professor Wade.

The aim of the department is to treat the Greek language not merely as a disciplinary instrument, but as a factor in the broadest and most liberal culture. Throughout the course the practice of reading at sight is encouraged, and especial effort is made to develop such facility that the student may resort with pleasure to the masterpieces of the Greek language, and find in them the delights and inspirations of a noble literature. To this end also considerable attention is paid to the style and literary characteristics of the authors read. The relations of Greek to the Latin, German, and English languages are discussed, and the course is shaped to develop, discipline, and enrich the linguistic resources of the student. Reading without translation is encouraged from the beginning. Incidentally, studies are made of the customs and daily life of the people. Discussion relative to the laws, philosophy, and religion of the Greeks is introduced, and some attempt is made to exhibit the indebtedness of modern civilization to Hellenism.

SUBJECTS.

*1. Elementary. Goodwin's Grammar; Gleason and Atherton's First Book; Xenophon (Anabasis); Homer. *Double subject. Monday, Wednesday, and Friday at* 11.45, *and Tuesday, Thursday, and Saturday at* 9.45. ASSISTANT PROFESSOR WADE.

Greek 1 is intended for students entering without Greek and wishing to begin the study of that language. It is assumed that their previous training in linguistic studies will enable them to proceed rapidly and accomplish in one year all the work usually done in preparation for college.

*2. Xenophon (Memorabilia or Cyropædia); Herodotus; Homer (Odyssey); Sophocles; Greek Composition. *Monday, Wednesday, and Friday at* 2. (*The hour on Friday is* 3 *for the present year.*) ASSISTANT PROFESSOR WADE.

Greek 2 is for students who have passed the entrance requirements in Greek. Particular attention is given to the syntax of the language and to the development of the dialects. Incidentally, study is made of the customs and daily life of the people. The course is supplemented by lectures on Greek literature, Hellenic antiquities, and on the literary characteristics of the authors read.

3. Lysias (selected orations); Antiphon (Herodes and Choreutes); Demosthenes (On the Crown); Euripides (Medea); Æschylus (Seven against Thebes); reading at sight. *Tuesday, Thursday, and Saturday at* 11.45. ASSISTANT PROFESSOR WADE.

[4. Andocides (Mysteries and On the Return); Isocrates (Selections); Isæus (Selections); Euripides (Hippolytus); Æschylus (Prometheus Bound); reading at sight. *Tuesday, Thursday, and Saturday at* 11.45. ASSISTANT PROFESSOR WADE.]

Greek 3 and 4 are offered in alternate years, and are open to those who have passed in Greek 2. It is intended in either case to give the first term to the critical study of the orators and the second to the dramatists. Rhythm and metre are studied in connection with the dramatists, and modes and tenses with the orators. At suitable points, lectures on the laws, oratory, theatre, and religion of the Greeks are given.

5. Theocritus (Idylls and Epigrams); Pindar (Olympian and Pythian Odes); Tyler's Selections from Greek Lyrics; reading at sight in the Odyssey. *Hours to be arranged with the instructor.*
PROFESSOR SCHNEIDER.

Greek 5 is open to those who have completed Greek 3 or 4. Much attention is paid to the development of Greek lyric poetry, and the various theories of rhythm and metre are discussed. Lectures on appropriate topics are given in connection with the work.

6. Plato (Symposium); Aristotle (Ethics, Books I–IV, or Politics); reading at sight in Herodotus and Lucian. *Hours to be arranged with the instructor.* PROFESSOR SCHNEIDER.

Greek 6 is open to those who have completed Greek 3 or 4. A critical study of the authors read is supplemented by a general survey of Greek philosophy.

*7. Greek Composition; practice in sight-reading. *Half-subject. Hours to be arranged with the instructor.*
ASSISTANT PROFESSOR WADE.

Greek 7 may be taken by any one who has had the equivalent of Greek 1. It is especially recommended to Freshmen intending to pursue the study of Greek beyond the Freshman year.

8. Greek Composition; reading at sight; outside study of some Greek author, including the preparation of an essay. For 1898–99 the subject selected is the Herakles Mainomenos of Euripides. *Half-subject. Hours to be arranged with the instructor.*
ASSISTANT PROFESSOR WADE.

Greek 8 is intended primarily for Sophomores making Greek their major. Other students properly qualified will be admitted.

9. Plato (Gorgias, Phædo, Republic I–V); Greek Composition; preparation of thesis. *Wednesday and Friday from* 4 *to* 5.30.
ASSISTANT PROFESSOR WADE.

[10. Study of the sources of Greek History; critical reading of Herodotus, Thucydides, Xenophon, and Diodorus Siculus; Greek Composition; preparation of thesis. *Wednesday and Friday from* [4 *to* 5.30. ASSISTANT PROFESSOR WADE.

[11. The Rivalry of Æschines and Demosthenes; Æschines, De Falso Legatione, In Ctesiphontem; Demosthenes, private orations connected with life of Demosthenes; orations, On the Embassy and For the Crown; Plutarch, Vita Demosthenis; preparation of thesis. *Wednesday and Friday from* 4 *to* 5.30.

ASSISTANT PROFESSOR WADE.]

Greek 9, 10, and 11 are rotated so that each is given every third year, 9 being the subject for 1898–99. These subjects are intended for those wishing to pursue graduate work in the department. They may, however, on permission from the instructor, be taken by any one who has completed Greek 3 or 4. Independent work is encouraged throughout, and theses are read and criticised by the students. Lectures are given in 9 on legal antiquities, in 10 on Greek history, and in 11 on the life, works, style, and philosophy of Plato.

PHILOSOPHY.

PROFESSOR SHIPMAN.

The department offers work in all the traditional branches of the subject, adapted to the needs of many kinds of students. To the specialist in the sciences it affords a comprehensive view of the sciences from the point of view of metaphysics. To the student seeking general culture it offers the liberalizing study of the history of philosophy. To the specialist in philosophy it will give work as far as an undergraduate should go. The department offers no graduate work as yet.

In all cases where there is opportunity, the department advises first for every student the introducton to the history of philosophy (Philosophy 1). The other subjects may then follow at the student's option, or as his specific needs seem to demand. The primer of philosophy is its history, and the natural way is to read this first. To follow this natural course makes of philosophy an inductive science.

Students choosing philosophy as their major department will be expected to take at least three term hours in each of these subjects, History of Philosophy, Logic, and Psychology, and to make up three years of continuous work. The department offers half-year subjects in every case.

The Philosophical Conference holds public meetings at least three times during the year. It gives the opportunity to the students of discussing philosophical subjects collateral to the regular work, and sometimes invites eminent persons to address it on special subjects.

SUBJECTS.

*1. Introductory courses. History of Philosophy; the pre-Socratic Greeks: Socrates, Plato, and Aristotle; the periods of the Renaissance (1500–1689) and the Enlightenment (1689–1781); German Idealism from Kant to Hegel (1781–1820), and Modern Evolution Theories; lectures and examinations. *Monday*, *Wednesday*, *and Friday at* 9.45 (*first half-year*). DR. CUSHMAN.

*2. Psychology,—lectures and elementary experiments; the relation between mind and body, introduced by a short study of the anatomy of the brain. *Monday*, *Wednesday*, *and Friday at* 9.45 (*second half-year*). DR. CUSHMAN.

*3. Logic, especially Deductive, with an elementary consideration of fallacies. *Tuesday*, *Thursday*, *and Saturday at* 10.45 (*second half-year*). PROFESSOR SHIPMAN.

4. Logic (advanced), especially Inductive. *Tuesday*, *Thursday*, *and Saturday at* 10.45 (*first half-year*). PROFESSOR SHIPMAN.

Much attention is paid to practical exercises. Philosophy 4 is open to those students who have, with distinction, completed Philosophy 3. In it fallacies are discussed at much greater length, and recent modifications of logical doctrine are examined.

5. Ethics, historical and constructive; theses, lectures and text-book. *Tuesday*, *Thursday*, *and Saturday at* 9.45 (*first half-year*). DR. CUSHMAN.

6. Ethics, practical; contemporary problems, education, charities, temperance, socialism. *Tuesday*, *Thursday*, *and Saturday at* 10.45 (*second half-year*). PROFESSOR TOUSEY.

Philosophy 6 follows 5 in natural sequence.

7. The Philosophy of Religion; classification of theological questions, with critical and constructive work by the class; lectures; wide reading. *Monday*, *Wednesday*, *and Friday at* 3 (*first half-year*). PROFESSOR KNIGHT.

8. Metaphysics. The fundamental questions of philosophy, such as personality, immortality, evil, theism, causation, nature, social consciousness in reference to the points of view of modern empirical science, religious mysticism and philosophical idealism; theses, lectures, text-book. *Monday*, *Wednesday*, *and Friday at* 10.45 (*first half-year*). DR. CUSHMAN.

[9. Descartes, Leibnitz, Spinoza; critical and expository reading of the authors; lectures and theses. *Monday*, *Wednesday*, *and Friday at* 10.45 (*second half-year*). DR. CUSHMAN.]

[This subject will be given in 1900-01.]

10. English Philosophy from Hobbes to Hume. Critical and expository reading of the authors; lectures and theses. *Monday*, *Wednesday*, *and Friday at* 10.45 (*second half-year*). DR. CUSHMAN.

[11. Kant and Schopenhauer. Hours and method the same as in 9. DR. CUSHMAN.]

[This subject will be given in 1899-1900.]

HISTORY.

ASSISTANT PROFESSOR START.

The department aims to develop the idea of unity in the history of mankind, and to make the study of all history of practical value through its relation to present-day problems. To this end a thorough scientific knowledge of essential facts, and the arrangement of these facts in their true proportions, is sought, while in some subjects opportunity is offered for individual work and closer examination of details. History 1 is the introductory subject by which the student is prepared for more specialized work. History 2 opens to students well qualified for historical study an opportunity to develop their knowledge of important epochs in the history of Europe. History 3 is devoted to England, and 4, 5, and 6 to our own country. Opportunity is thus given during the undergraduate course to obtain a conspectus of those fields of history most important to the American student. The method of work is briefly explained in connection with the appended statement of subjects.

Major students will in most cases be required to choose their collateral subjects in the fields of Political Science or Philosophy, though variations may be made when it seems advisable. English Literature is a natural collateral for those working along the lines of English history. Political Science 2 and 5 are essentially historical. A reading knowledge of French and German is always useful for the student of history, and is necessary for anything approaching a thorough study of continental European history.

SUBJECTS.

**1. General European History. A study of the elementary principles of historical science and of the outlines of European history to 1815. Two lectures weekly, class discussions, collateral reading, and practice work. *Tuesday*, *Thursday*, *and Saturday at* 10.45.

ASSISTANT PROFESSOR START.

History 1 must precede all other subjects in History. It will not be accepted for an advanced degree. It is open to any student who has passed the requirements in History for admission to the College. A considerable amount of time will be given to the Middle Ages and the formative influences from which modern Europe has developed.

2. Studies of Periods in European History. Individual work in libraries and with the instructor. *Six hours* (*counting three term hours*) *a week. Hours may be arranged for each student.*

ASSISTANT PROFESSOR START.

The work will consist of thorough study of the period chosen, preparation and arrangement of notes, making of maps, charts, and bibliographies; and possibly a thesis. Periods suggested for study in 1898–1900 are: (*a*) The Renaissance; (*b*) The Eighteenth Century; (*c*) The French Revolution; (*d*) The Napoleonic Period; (*e*) The Nineteenth Century.

[3. English History. ASSISTANT PROFESSOR START.]

4. American Colonial History. Spain, France, and England in the New World. The formation and social and political life of the colonies. Lectures, collateral readings, and topical reports. Open to students who have taken History 1. *Monday*, *Wednesday*, *and Friday at* 9.45 (*second half-year*). ASSISTANT PROFESSOR START.

5. Political and Constitutional History of the United States. The Revolution, formation of the Union, development of the Nation under the Constitution. Lectures, study of sources and literature, theses, and topical work. Open to students who have taken History 1 and 4. *Monday*, *Wednesday*, *and Friday at* 10.45.

ASSISTANT PROFESSOR START.

History 4 and 5 form a continuous course in which similar methods are used. The collateral reading and topical work involve thorough study of the principal literature of American history and of the leading historical documents. While primarily for undergraduates, these subjects may be taken by graduates, and may count toward an advanced degree, but in such a case it is expected that the subject will be passed with high credit, and that some additional special work will have been done.

[6. Seminary in American History. Research work with the sources. *Full subject; meetings weekly or fortnightly, at the pleasure of the instructor.* ASSISTANT PROFESSOR START.]

In the seminary each student becomes an active historical investigator, examining the sources upon which history is based, and obtaining by personal experience an insight into the principles of research and criticism. Work of sufficient value done in the seminary will be preserved in the college library. Only students who have done with credit at least nine term hours of work in the department, including History 4, are eligible.

[7. Seminary for the study of the Philosophy and Methods of History. *Weekly meetings to be arranged with the instructor.*
ASSISTANT PROFESSOR START.]

This seminary will be opened whenever two or more properly qualified candidates present themselves. It is intended primarily for graduates, especially for those who intend to teach history, but undergraduates of high standing, who have passed in not less than twelve term hours of work in the department, may be admitted by permission of the instructor. The members will work on independent but co-operative lines, and much attention will be given to methods of historical study and teaching. The hours of meeting will be so arranged that teachers of history in the schools may join the seminary.

8. The Comparative History of Religions. Egypt, Babylon, Nineveh; Parseeism, Hinduism, Buddhism, Confucianism, Mohammedanism; with a study of the civilizations represented by these religions. *Tuesday, Thursday, and Saturday at* 11.45 (*first half-year*).
PROFESSOR KNIGHT.

POLITICAL SCIENCE.

PRESIDENT CAPEN.

In this department are included subjects relating to Economics, Government, and Law.

The subject of Political Economy begins with an historical survey, the object being to trace the growth of economic ideas from the beginning, and to note the phases they have assumed among different peoples in the modern world. Then follows a consideration of the fundamental principles of economics. Students are assigned the task of making practical application of principles to the solution of present economic problems. Time is given to subjects of immediate and living interest, such as the labor question, socialism, the tenure of land, taxation, and finance.

In the study of Ancient Law the object is, first, to determine the nature of primitive jural conceptions, and, as far as possible, to ascertain how they have arisen and on what they are founded; then, to trace the transformations which these conceptions have undergone, particularly in the Roman jurisprudence and the legal systems that have a Roman root. The effect which legal speculations and doctrines have had, not only upon modes of precedure, but upon civil institutions, political principles, social and domestic life, is carefully studied. International Law follows in the second term. So far as the time allows, a treatment of the subject that is at once broad and practical is sought.

Political theory and the practice of government are treated in subject 5.

SUBJECTS.

1. Political Economy. Lectures on the History of Finance; Methods and Functions of Banking; Taxation, including Principles of Civil Government. Text-book work, lectures, and independent investigation dealing with the history of economics, theories of production, consumption, distribution, etc.; problems of profits, wages, and labor. *Tuesday, Thursday, and Saturday at* 8.45.

PRESIDENT CAPEN.

2. Ancient Law; Roman Law. Lectures, text-book work, and discussions. *Tuesday, Thursday, and Saturday at* 9.45 (*first half-year*).

PRESIDENT CAPEN.

3. International Law. Lectures, text-book work, and discussions. *Tuesday, Thursday, and Saturday at* 9.45 (*second half-year*).

PRESIDENT CAPEN.

4. Research work in problems of Government or Economics for students electing Political Science as their major department, who have passed in 1, 2, and 3.

PRESIDENT CAPEN.

5. Political Science and Comparative Constitutional Law. A study of the origin and nature of the State, and the development of typical constitutions. Lectures, text-book work, collateral reading, and discussions. *Monday, Wednesday, and Friday at* 2. (*Given this year Tuesday, Thursday, and Saturday at* 8.45.)

ASSISTANT PROFESSOR START.

Political Science 5 must be preceded by History 1, and should be preceded or accompanied by History 3 and 5. Political Science 2 is also valuable as an introduction.

MATHEMATICS.

PROFESSOR BROWN.

The study of Mathematics is required through the first year. The branches taught are: Algebra, through the subjects included in most college text-books preceding the theory of equations; Solid and Spherical Geometry; Plane Trigonometry, with its applications. Two objects are kept constantly in view: first, to acquire and hold certain mathematical facts for future use; secondly and mainly, to train the mathematical faculties so that the student may acquire the ability to deduce mathematical truths from those previously established. The classroom work of the instructors is a combination of lectures with questioning of the students to ascertain that the points presented are duly comprehended.

An opportunity to continue the study of Algebra and also a course in Determinants are offered at the middle of the first year. Plane Analytic Geometry is offered as an elective for the first half of the second year. This study may be continued with higher plane curves and Geometry of three dimensions during the second half of the second year. Differential and Integral Calculus is required for three half-years in the Engineering courses, and the subject is open as an elective to any student who has taken Plane Analytic Geometry.

SUBJECTS.

1. College Algebra; Solid Geometry; Plane Trigonometry. Applications of Plane Trigonometry. *Monday, Wednesday, and Friday at* 8.45 (Division 1). *At* 9.45 (Division 2). PROFESSOR BROWN.

2. Theory of Equations and Elements of Determinants. *Tuesday, Thursday, and Saturday at* 11.45 (*second half-year*). PROFESSOR BROWN.

3. Plane Analytic Geometry. Open to students who have taken 1. *Monday, Wednesday, and Friday at* 10.45 (*first half-year*). PROFESSOR BROWN.

4. Spherical Trigonometry; Projections of Triangles; use of Richards's Manual, with the sphere. Open to students who have had 1. (*First half-year.*) PROFESSOR BROWN.

5. Higher Plane Curves; Analytic Geometry of Three Dimensions. *Monday, Wednesday, and Friday at* 10.45 (*second half-year*).
PROFESSOR BROWN.

6. Differential and Integral Calculus. *Three hours a week* (*second half-year*). PROFESSOR BROWN.

7. Differential and Integral Calculus continued. *Three hours a week* (*first half-year*). PROFESSOR BROWN.

8. Differential and Integral Calculus (advanced course). *Two hours a week* (*second half-year*). PROFESSOR BROWN OR MR. WREN.

9. Weld's Theory of Determinants; Hanus's Elements of Determinants. *Three hours a week* (*first half-year*). MR. WREN.

10. Differential Equations. *Two hours a week* (*second half-year*).
PROFESSOR BROWN OR MR. WREN.
[See Engineering Courses.]

11. Method of Least Squares. *Two hours a week* (*second half-year*). PROFESSOR BROWN OR MR. WREN.

12. Quaternions. *Three hours a week* (*first half-year*).
MR. WREN.
[See Engineering Courses.]

13. Theory of Functions. *Three hours a week* (*second half-year*).
MR. WREN.
[See Engineering Courses.]

[*Drawing* 1 (DESCRIPTIVE GEOMETRY) *is also a distinctly mathematical subject. For further subjects essentially mathematical, see subject* 4 *in the department of Drawing, and subjects* 1 *and* 6 *in the department of Civil and Mechanical Engineering.*]

PHYSICS.

PROFESSOR DOLBEAR.

The work in Physics begins with a consideration of General Physics, this being the subject to be taken by those electing Physics for their prescribed work in science, and the introductory subject for major students in Physics. A text-book is used, critical comments and much additional material are given, and frequent lectures are given with experiments. The aim is to present the science of Physics not as a series of detached subjects, but as a consistent body of doctrine in which mechanical principles hold throughout, and from which all the various phenomena are deducible. Hence in each branch there are frequent returns to these first principles. The rapid development of electrical science having quite outstripped text-books, this subject is treated wholly by lectures.

An elective course is offered of about twenty-five lectures upon the relations of Physics to other branches of natural science, introducing the doctrine of the conservation of energy as applicable to all. After this follows a more extended consideration of the fundamental questions in Physics. Spencer's First Principles is read, and its subject-matter thoroughly discussed.

In the Physical Laboratory beginners are given Stewart and Gee's Practical Physics, first volume, for a guide. They work for the most part independently, and each pursues a given subject till satisfactory results are obtained. Glazebrook and Shaw's Practical Physics is followed on the subjects of sound, heat, and light, Pickering's Manipulation and Kohlrausch's Measurements being also used to a limited extent. In electricity and magnetism Stewart and Gee's second volume is mainly followed, supplemented, in the case of engineering students, by parts of Gray's Absolute Measurements and Kempe's Testing. In all laboratory work each student records methods and results in a suitable note-book, and is encouraged to do a few things well rather than to go carelessly over a larger ground. Students who are preparing themselves to become teachers of Physics have an opportunity to perform most of the experiments needed for illustrating elementary work.

SUBJECTS.

1. General Physics. Lectures, recitations, and experiments. To be taken by students choosing Physics for their prescribed science subject, and introductory to other subjects in Physics. *Monday, Wednesday, and Friday at* 10.45. PROFESSOR DOLBEAR.

3. Electricity. Thompson's Elementary Lessons in Electricity and Magnetism. Lectures and recitations. *Monday, Wednesday, and Friday at* 11.45 (*second half-year*). MR. H. G. CHASE.

4. Physical Laboratory. Mechanics, Sound, Heat, and Light. *Six hours a week* (*second half-year*). MR. H. G. CHASE.

5. Electricity: Theory of Measurements. *Three hours a week* (*first half-year*). Electrical Laboratory: Simple Measurements and Tests. *Two hours a week.* MR. H. G. CHASE.

6. Relation of Physics to Sociology. Lectures. *Tuesday and Thursday at* 3 (*first half-year*). PROFESSOR DOLBEAR.

7. Spencer's First Principles. *Tuesday and Thursday at* 3 (*second half-year*). PROFESSOR DOLBEAR.

CHEMISTRY.

PROFESSORS MICHAEL AND DURKEE.

The work in the department begins with Chemistry 1, which is open for election by the students of the courses in Liberal Arts, and is required of engineering students in their second year. The instruction is by means of lectures, recitations, and laboratory work. The lectures, illustrated by numerous experiments, are intended to give a thorough elementary knowledge of theoretical and descriptive inorganic chemistry, including a brief account of the chemistry of the carbon compounds and the principal technical processes. One-half of the time devoted to this subject is given to practical work in the laboratory, and the student has an opportunity to verify some of the chemical theories, and to become familiar with substances and their chemical behavior. The lectures are supplemented by recitations and written examinations. An opportunity to continue the study of theoretical and inorganic chemistry is afforded by subjects 11 and 12. Those who wish may supplement the above course of lectures with laboratory practice by taking subject 14, in which some of the more difficult inorganic experiments and preparations are performed.

The instruction in Qualitative Analysis extends through a year, and consists of two subjects (2 and 3), taught in part by lectures and recitations, but mainly by work in the laboratory. During the advanced course the student is required to analyze correctly a large number of mixtures and minerals. Subject 6 is intended to teach the use of the blowpipe in chemistry, together with the tests that are of special value in determinative mineralogy. Crystallography is taken up in connection with this subject. Quantitative Analysis is mainly taught by laboratory practice, in order that the student may attain that skill in manipulation which is necessary for this kind of work. In subject 4 the student is required to analyze the simpler salts and minerals, and in the advanced subject 5, the more complicated minerals, ores, commercial and food products. The analysis of organic substances is included in subject 5. Gas analysis (subject 9) is taught by lectures and laboratory work, principally in the use of technical methods. Assaying (subject 7) is adapted to familiarize the student with the practical methods of sampling and assaying gold, silver, and lead ores. The above subjects cover a comprehensive study of analytical chemistry, and are intended to give the student such a thorough theoretical and practical knowledge as to prepare him for analytical work of any description. The course of lectures in Metallurgy (subject 8), with recitations, is intended to give the student a general idea of fuels, ore dressing, refractory building materials, and the more important technical methods of extracting iron, copper, and silver.

The study of Organic Chemistry begins with a course of lectures, illustrated by experiments and recitations, which cover the general principles, methods, and description of the most important organic compounds. For those who wish to specialize in this science an opportunity is given by subject 13, in which by lectures the underlying theories of organic chemistry are fully discussed and the relations between them and organic reactions are explained. The laboratory practice in organic chemistry (subject 15) may be begun at the same time as subject 10 and continued with 13. It includes the methods for determining the physical properties and molecular weights of organic substances and the preparation of compounds. When taken in connection with subject 13, one or more researches of special importance will be repeated by the student. The subjects 12, 13, 14, 15, and 16 may be taken as graduate work.

Subjects 12, 13, 14, and 15 are especially designed to lead up to research work in chemistry, and students who have taken them, with subject 5, are prepared to enter on this line of advanced work. Ample facilities are offered for the successful prosecution of investigations in inorganic and organic chemistry.

Two laboratory hours are equivalent to one term hour, except in the special course in chemistry, for the degree of Bachelor of Science, in which three hours of work in the laboratory count as one term hour. The quantitative and organic laboratories are open from nine to five o'clock daily, Saturday afternoons excepted.

SUBJECTS.

1. General Chemistry. Lectures, recitations, and laboratory work. *Three hours a week.* PROFESSOR DURKEE.

2. Qualitative Analysis. Basic Analysis. *Lectures, laboratory work, and recitations, on Tuesday and Thursday from* 2 *to* 5; *also on Saturday*, 8.45 *to* 11.45, *for students of the Special Course in Chemistry* (*first half-year*). PROFESSOR DURKEE.

3. Qualitative Analysis. Acids; Analysis of Salts, Commercial and Natural Products. *Lectures, laboratory work, and recitations, on Tuesday and Thursday from* 2 *to* 5; *also on Saturday*, 8.45 *to* 11.45, *for students of the Special Course in Chemistry* (*second half-year*). PROFESSOR DURKEE.

4. Quantitative Analysis. Gravimetric and Volumetric Analysis; Analysis of Minerals. *Lectures and laboratory work. Three hours a week.* DR. HARTMAN.

5. Quantitative Analysis (advanced course). Analysis of Minerals, Ores, Water, Food Products, Organic Analysis. *Laboratory work. Three hours a week.* DR. HARTMAN.

6. Crystallography and Determinative Mineralogy. Open to students who have taken 1, 2, and 3. *Lectures and laboratory work. Two hours a week* (*first half-year*). DR. LEIGHTON.

7. Fire Assay. Open to students who have taken 1, 2, 3, and 4. *Two hours a week* (*second half-year*). PROFESSOR DURKEE.

8. Metallurgy. Lectures and recitations. Open to students who have taken 1. *Three hours a week* (*second half-year*). PROFESSOR DURKEE.

9. Gas Analysis. Lectures and laboratory work. Open to students who have taken 1, 2, 3, and 4. *One hour a week.* DR. HARTMAN.

10. Organic Chemistry. Lectures and recitations. Open to students who have taken 1. *Three hours a week* (*first-half year*). DR. LEIGHTON.

11. Theoretical Chemistry. Lectures and recitations. Open to students who have taken 1. *Two hours a week* (*second half-year*). DR. LEIGHTON.

12. Theoretical and Inorganic Chemistry (advanced course). Lectures and recitations. Open to students who have taken 1 and 11. *Three hours a week (first half-year).* PROFESSOR MICHAEL.

13. Organic Chemistry (advanced course). Lectures and recitations. Open to students who have taken 1 and 10. *Three hours a week.* PROFESSOR MICHAEL.

14. Laboratory work in Inorganic Preparations. *Hours to be arranged by the instructors.*
PROFESSOR MICHAEL AND DR. LEIGHTON.

15. Laboratory work in Organic Analysis; determination of physical constants and molecular weights; preparation of organic compounds. *Hours to be arranged by the instructors.*
PROFESSOR MICHAEL AND DR. LEIGHTON.

16. Original Investigations in Chemistry. *Hours to be arranged by the instructor.* PROFESSOR MICHAEL.

17. Discussions on chemical subjects and recent investigations. *One hour a week.*

BIOLOGY.

PROFESSOR KINGSLEY.

The work in Biology is differentiated in two lines: one for those desiring a general knowledge of the subject, and one for those who need more thorough work. The first line embraces Biology 1, and may, upon election, be followed by subjects 4, 5, and 6. The other course begins with Biology 2 and 3, and is required of all major students as well as of candidates for the degree of S. B. in the Biology, Medical Preparatory, and General Science courses. These are followed by subjects 5 to 9, subject 8 involving the preparation of a dissertation. Instruction is given by lectures and by laboratory work, the object being to impart the scientific method rather than a large number of unimportant facts. Provision is also made for more extended study and for original investigation, and students will be encouraged to continue their work in this department by means of research on special problems.

The equipment of the department is good. There are three well-lighted laboratories furnished with every requisite for good work, including microscopes, microtomes, reagents, etc., as well as abundant material for illustration and dissection. One of the laboratories is devoted to elementary biology, one to advanced undergraduate work, and one to graduate students. There is also a department library containing over one thousand volumes and over 2,800 pamphlets and parts of volumes, while the college library contains the proceedings of many learned societies, both American and foreign. Besides these, proximity to Boston and Cambridge gives easy access to library facilities unequalled in any other part of America.

SUBJECTS.

1. General Biology. Lectures, *Tuesday and Thursday at* 11.45; laboratory work, *Tuesday and Thursday from* 2 *to* 4.
PROFESSOR KINGSLEY.

This subject is intended for those who elect their required year of science work in this department and for candidates for the degree of S. B. in Chemistry.

2. General Biology. Lectures, *Monday and Friday at* 11.45; laboratory work, *Tuesday and Thursday from* 2 *to* 4.
PROFESSOR KINGSLEY.

This subject and its continuation, Biology 3, are required of all students electing Biology as their major, and also of candidates for the degree of S. B. in the General Science, Biological, or Medical Preparatory Course.

3. General Biology. Lectures, *Monday and Friday at* 4; laboratory work (four hours), *Monday*, *Wednesday*, *and Friday from* 2 *to* 4.
PROFESSOR KINGSLEY.

4. Elementary Physiology. Lectures, demonstrations, and recitations. *Tuesday*, *Thursday*, *and Saturday at* 8.45 (*first half-year*).
PROFESSOR KINGSLEY.

[Not given in 1899-1900.]

The students in the Medical Preparatory course take this subject at the Medical School.

Subjects 1 to 4 will not be accepted as work for advanced degrees.

5. Histology; a study of the normal tissues of the vertebrates, including microscopical technique. One lecture and four hours of laboratory work. *Hours to be arranged by the instructor.*
PROFESSOR KINGSLEY.

6. Embryology. One lecture and four hours of laboratory work. *Hours to be arranged by the instructor.* PROFESSOR KINGSLEY.

8. Special Work. Six hours of laboratory work for the year in the investigation of some special problem. PROFESSOR KINGSLEY.

9. General Morphology. Lectures each week upon the anatomy, physiology, and embryology of selected groups, with discussion of special problems. Open only to advanced students. *Hours to be arranged.* PROFESSOR KINGSLEY.

Subjects 5 to 9 are intended for both graduates and undergraduates.

There is required from all students taking Laboratory Courses a laboratory fee of two dollars per term for each course, payable in advance.

GEOLOGY.

For the present the course in Geology will be given in the second half-year. It is required of students in the Bachelor of Science courses in General Science and in Biology. It is open to others who have passed in Physics 1, Chemistry 1 and 6, and Biology 1. The work included in Geology 1 is covered by Chemistry 6.

SUBJECT.

2. Geology. *Tuesday, Thursday, and Saturday at* 9.45 *to* 11.45 (*second half-year*). PROFESSOR KINGSLEY.

ASTRONOMY.

1. Recitations and Lectures, chiefly on Physical and Descriptive Astronomy, with special attention to the later discoveries, and their interpretation as bearing upon the history of the earth. *Tuesday and Thursday at* 11.45 (*first half-year*). PROFESSOR DOLBEAR.

DRAWING AND SHOPWORK.

PROFESSOR ANTHONY.

Drawing.

The object of the studies pursued in this department is threefold: first, a development of the theory of technical drawing; second, the acquirement of precision and rapidity in the execution of the work; third, a practical application of these principles to the fluent expression of mechanical ideas by means of graphic language. Practice in the attainment of the first is acquired by Freehand and Geometric Drawing and the study of Descriptive Geometry. By means of progressive problems, in which nothing in the nature of a copy is permitted, the student is advanced to the consideration of point, line, and surface from a purely analytic standpoint. The instruction in Descriptive Geometry is given by means of lectures and recitations, accompanied by frequent examinations in the freehand and instrumental construction of the problems. Rapidity of work being attained only through precision, drawings are required to be executed with the greatest possible care and neatness. The theory and execution of a drawing having been mastered, together with the elements of kinematics, the student is directed to make such applications of these principles to the illustration of mechanism as shall enable him graphically to express his ideas in the most simple and direct manner. The machine drawings are made by such systems as would be required in any well-conducted drafting-room, and the most modern methods are employed in the execution of the work and in the forms of graphic expression that may be used. A progressive course in design is pursued preparatory to and in connection with thesis work.

SUBJECTS.

1. Descriptive Geometry. Lectures, recitations, and drawing. *Four hours a week (second half-year).*
PROFESSOR ANTHONY AND ASSISTANT PROFESSOR DANIELS.

2. Technical Sketching and Lettering. *Two hours a week (first half-year).*
PROFESSOR ANTHONY and ASSISTANT PROFESSOR DANIELS.

3. Mechanical Drawing. (See Engineering Courses). *Three hours a week for the year.* PROFESSOR ANTHONY.

4. Kinematics. *Three hours a week (first half-year).*
PROFESSOR ANTHONY.

5. Machine Drawing (Elementary). *Two hours a week (second half-year).* PROFESSOR ANTHONY.

6. Machine Drawing (Advanced). *Two hours a week (first half-year).* MR. C. H. CHASE.

7. Elements of Design. *Two hours* a week (second half-year).*
PROFESSOR ANTHONY.

8. Topographical Drawing, with field work, chain, compass, level, and transit. *Three hours a week for the year.*
ASSISTANT PROFESSOR DANIELS.

9. Machine Design (Advanced). *Two hours* a week (second half-year).* PROFESSOR ANTHONY.

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* Each hour represents a two-and-a-half-hour period.

Shopwork.

As the engineer, or draftsman, must have clearly in mind the processes by which a design is to become a reality, it is a primary object of the course to familiarize the student with the various processes of construction and the manipulation of materials. The object is not to produce expert workmen, although a reasonable amount of skill is required, but to give such training as will best serve in the direction and supervision of the work of others. The course is progressive, comprising the subjects enumerated below, and maintaining a close relation with the courses in drawing and design. Much of the work in design is executed in the shop from drawings prepared in the drafting-rooms.

SUBJECTS.

1. Carpentry and Turning. *Two periods* a week* (*first half-year*).
Mr. C. H. Chase.

2. Pattern-making and Moulding. *One period a week* (*second half-year*).
Mr. C. H. Chase.

3. Forging. *One period a week* (*second half-year*).
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4. Vise and Machine Tools. *Two periods a week* (*second half-year*).
Mr. C. H. Chase.

5. Project Work. *Three periods a week* (*second half-year*).
Mr. C. H. Chase.

CIVIL AND MECHANICAL ENGINEERING.

Professor Bray.

There are offered in this department such selected subjects from the Engineering Courses as may be profitably pursued by students in the courses in Liberal Arts, who have taken the necessary preliminary work in Mathematics, and who may desire to shape their work with reference to pursuing study in Engineering after graduation. Such students will also find subjects adapted to their plans in the departments of Mathematics, Physics, Chemistry, and Drawing. Fuller details of the work in Engineering will be found in the statement of the full Engineering Courses. For all the subjects given below, Algebra, Geometry, and Trigonometry are an indispensable preparation.

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* Three hours each.

SUBJECTS.

1. Land Surveying. Lectures, recitations, and field practice. Plotting and calculating. *Two hours a week* (*first half-year*).
ASSISTANT PROFESSOR DANIELS.

2. Topography. Lectures, recitations, drawing, and field practice. *Two hours a week.* ASSISTANT PROFESSOR DANIELS.

This subject must be preceded by 1.

3. City and Mining Surveying. Recitations, field and office work. *Three hours a week* (*second half-year*).
ASSISTANT PROFESSOR DANIELS.

4. Railroad Surveying. Field practice and office work; drawing and calculating. *Two hours a week* (*first half-year*).
ASSISTANT PROFESSOR DANIELS.

5. Steam Enginery; practice in the management of engines and boilers, valve-setting, etc. *Three hours a week* (*first half-year*).
PROFESSOR ANTHONY.

6. Applied Mechanics. *Three hours a week* (*second and first half-years*. PROFESSOR BRAY.

Subjects 5 and 6 must be preceded by Calculus.

7. Applied Mechanics (Laboratory). *One hour a week* (*first half-year*). PROFESSOR BRAY.

8. Mechanical Laboratory. *Four hours a week* (*second half-year*). PROFESSOR BRAY.

9. Roads and Railroads, to be taken with 4. *Three hours a week* (*first half-year*); *two hours a week* (*second half-year*).
PROFESSOR BRAY.

10. Hydraulics. *Three hours a week* (*first half-year*).
PROFESSOR BRAY.

11. Bridges and Roofs. *Two hours a week* (*first half-year*).
ASSISTANT PROFESSOR DANIELS.

12. Masonry Construction. *Three hours a week* (*second half-year*). PROFESSOR BRAY.

ELECTRICAL ENGINEERING.

PROFESSOR HOOPER.

To students in the College of Liberal Arts who may desire to elect advanced work in Electricity, the following subjects are open: Subjects, 1, 2, and 3 require a good working knowledge of Algebra and Trigonometry, while 4 and 5 require some acquaintance wiih Calculus and Differential Equations.

SUBJECTS.

1. Dynamo-Electric Machinery. Recitations and lectures. *Three hours a week* (*second half-year*). PROFESSOR HOOPER.

2. Electrical Calculations. *Two hours a week* (*second half-year*). PROFESSOR HOOPER.

3. Electrical Laboratory (advanced course). *Three hours a week for the year.* PROFESSOR HOOPER.

4. Electricity (advanced work). Alternating currents. *Four hours a week* (*first half-year*)*; three hours a week* (*second half-year*). PROFESSOR HOOPER.

5. Theories of Electricity and of Magnetism. *Three hours a week for a half-year.* PROFESSOR HOOPER.

MUSIC.

PROFESSOR LEWIS.

The department offers opportunities to gain a knowledge of musical history and of the principles of composition, as a basis for practical work in music or in musical criticism. The courses in Harmony and in General History of Music may well be taken by students who wish to cultivate their appreciation of music, but have no intention of preparing themselves for professional work in the art.

SUBJECTS.

1. Harmony. Lectures and practical work, based on Jadassohn's Manual of Harmony. Collateral reading concerning the lives of Bach, Händel, Haydn, Mozart, and Beethoven. *Tuesday at* 3, *Thursday from* 2 *to* 4. PROFESSOR LEWIS.

An elementary knowledge of piano playing is required of those who take this subject.

2. Counterpoint, Simple and Double. Lectures and Practical

work, based on the manuals of Jadassohn, Bridge, and others. Collateral reading concerning the lives of Schubert, Schumann, Mendelssohn, and Wagner. *Three hours a week as arranged by the instructor.* PROFESSOR LEWIS.

A thorough theoretical knowledge of harmony, and much facility in the harmonization of basses and choral melodies, are required of those who take this course. A full equivalent of Music 1 must have been done by students who wish to begin their college work with Music 2.

[3. Fugue, Canon, Musical Form, and the Elements of Orchestration. Lectures and practical work, with various manuals for class use and reference. *Three hours a week for the year.*]

Students who elect this subject must have attained grade A or B in Music 2, and must have given evidence of talent in melodic invention. Those who are admitted to the course are required to attend regularly during the year the public rehearsals or concerts of the Boston Symphony Orchestra, and at least eight concerts of chamber-music, as prescribed by the instructor.

4. General History of Music, from the earliest times to the present day, with especial attention to the period since the death of Palestrina. Lectures, with various treatises for reference. *Three hours a week (second half-year) as arranged by the instructor.*

PROFESSOR LEWIS.

5. Special studies in Musical History, in Musical Criticism, or in the development of Musical Form. *Three hours a week (first half-year) as arranged by the instructor.* PROFESSOR LEWIS.

An equivalent of the work of Music 4 and an ability to read with facility German and French are required of students who elect this subject. The same requirement of concert attendance as for Music 3 is made for Music 5. The course may be given in lectures, or may consist of individual work of students under the direction of the instructor.

6. The Phenomena of Sound in their relation to music and musical instruments. Lectures and experiments. *One hour a week for the second half-year.* PROFESSOR DOLBEAR.

The first half-year's work in Physics 1 must have been done by those who elect this subject.

PHYSICAL TRAINING.

MR. STROUD AND MISS CARVILL.

Regular exercise in the gymnasium is required three hours a week of all undergraduate students for the two years following entrance, from the middle of November to the middle of March. The work in physical training is optional during the remaining years of the course. The aim of the department is to secure better carriage and more symmetrical development of the body, and to induce a fuller appreciation of the value of systematic exercise. The work prescribed for each student depends on the physical condition, as determined by careful medical examination, measurements, and strength tests. The special exercises of each student are directed by the instructor; the general exercises are in classes. The class work consists of free movements, exercises with wands and light dumb-bells, and on the parallel bars, vaulting-bar, and vaulting-horse. Attention is also given to running, jumping, vaulting, and other healthful athletic sports. It is the intention in all cases to make the exercises of such a character that the weakest as well as the strongest person can perform them with profit.

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Monday, Wednesday, Friday. (Odd number groups.)
Tuesday, Thursday, Saturday. (Even number groups.)
Tuesday and Thursday Afternoons. (Even number groups.)

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* For

TABULAR VIEW OF PROGRAM GROUPS.

The arrangement of such subjects as have fixed hours assigned to them is shown in the subjoined table. Hours for laboratory work and for subjects not here indicated are to be arranged with the instructors. Subjects in the same group cannot be taken simultaneously.

The groups assigned to Monday, Wednesday, and Friday are indicated by the odd number Roman numerals; those assigned to Tuesday, Thursday, and Saturday, by the even number Roman numerals.

The small Roman numerals (i) and (ii), following the names of half-subjects, indicate the half-year in which they are given.

Monday, Wednesday, Friday. (Odd number groups.)	I. — 8.45.	III. — 9.45.	V. — 10.45.	VII. — 11.45.
	English 4 (Monday, i). French 3. French 4. Mathematics 1 (first division).	English 3 (Monday, i). English 17 (i), 18 (ii). German 3. Philosophy 1 (i), 2 (ii). History 4 (ii). Mathematics 1 (second division).	English 7 (Wednesday). English 11 (Monday). German 5. Philosophy 8 (i), 10 (ii). History 5. Mathematics 3 (i), 5 (ii). Physics 1.	English 2. Latin 3. Greek 1. Physics 3 (ii). Biology 2 (lectures Mon. and Fri.).
	IX. — 2.00.	XI. — 3.00.	XIII. — 4.00.	
	English 1 (Friday). English 13 (i), 14 (ii). Greek 2 (Mon. and Wed.). Biology 3 (laboratory).	English 12. French 5. Philosophy 7 (i). Biology 3 (laboratory). Greek 2 (Friday).*	Greek 9 (Wed. and Fri.). Biology 3 (lectures Mon. and Fri.).	
Tuesday, Thursday, Saturday. (Even number groups.)	II. — 8.45.	IV. — 9.45.	VI. — 10.45.	VIII. — 11.45.
	German 2. German 6. French 2. Political Science 1. Biology 4 (i). Political Science 5.*	German 1. French 1. Latin 2. Greek 1. Philosophy 5 (i). Political Science 2 (i). Political Science 3 (ii). Geology 2 (ii).	English 20. English 25 (Friday). Italian 1. Latin 1. Philosophy 3 (ii), 4 (i). Philosophy 6 (ii). History 1. Geology 2 (ii).	German 4. Greek 3. History 8 (i). Mathematics 2 (ii). Biology 1 (lectures Tues. and Thu.). Astronomy 1 (i, Tues. and Thu.).
Tuesday and Thursday Afternoons. (Even number groups.)	X. — 2.00.	XII. — 3.00.	XIV. — 4.00.	
	English 1B (ii). Oratory 2 (Tuesday). Oratory 3 (Thursday). Chemistry 2 (i). Chemistry 3 (ii). Biology 1, 2 (laboratory). Music 1 (Thursday).	Chemistry 2 (i). Chemistry 3 (ii). Biology 1, 2 (laboratory). Physics 6 (i). Physics 7 (ii). Music 1. Oratory 1 (Thursday).	Chemistry 2 (i). Chemistry 3 (ii). Oratory 4 (Tuesday).	

* For the present year.

Courses in Science.

The special courses in General Science, Biology, Chemistry, and Medical Preparatory studies lead to the degree of Bachelor of Science, are entered through Entrance Examination Group V, and are intended for graduates of general high schools who wish to prepare themselves for specialized scientific work. Like the engineering courses, they are placed upon a technical basis, and far less latitude is allowed the student in the choice of subjects than in the courses in Arts and Philosophy, the election being made when the course is chosen. In addition to the studies given below for each course, students must elect other studies in the last two years, so as to make the total one hundred and twenty-eight term hours.

Unless otherwise described, the time assigned to subjects in the subjoined statements is given in term hours. Two laboratory hours ordinarily count as one term hour.

COURSE IN GENERAL SCIENCE.

PROFESSOR KINGSLEY.

Freshman Year.

English 1. Composition. Lectures, discussion of papers. *One hour a week for the first year. Friday at* 2. PROFESSOR SHIPMAN.

German 1. Elementary German. Joynes-Meissner Grammar, with Lewis's Exercises; Bernhardt's Im Zwielicht, II.; Riehl, Burg Neideck; Buchheim's Balladen und Romanzen. *Tuesday, Thursday, and Saturday at* 9.45. PROFESSOR FAY.

or

German 2. Intermediate German. Reading, Grammar, and Composition. Review of grammatical principles, especially with reference to syntax. Reading of modern prose and poetry, such as Riehl, Der Fluch der Schönheit; Freytag, Aus dem Staat Friedrichs des Grossen; Scheffel, Der Trompeter von Säkkingen. *Tuesday, Thursday, and Saturday at* 8.45. PROFESSOR FAY AND MR. DEMETER.

French 1. Elementary French. The essentials of grammar, with composition; Grandgent's Short Grammar, with College Exercises; a French Reader; reading of short works of modern authors in prose and verse. *Tuesday*, *Thursday*, *and Saturday at* 9.45.

PROFESSOR LEWIS AND MR. EARLE.

or

French 2. Intermediate French. Reading, Grammar, and Composition. Review of grammatical principles, especially with reference to syntax; exercise in composition; short weekly themes; reading of modern fiction and drama, such as Merimée's Colomba and Sandeau's Mademoiselle de la Seiglière. *Tuesday*, *Thursday*, *and Saturday*, *at* 8.45. PROFESSOR LEWIS AND MR. EARLE.

The order in which French and German are followed depends upon the language submitted for admission to the College. A student admitted with French will take French 2 and German 1, or with German will take German 2 and French 1.

Physics 1. General Physics. Lectures, recitations, and experiments. *Monday*, *Wednesday*, *and Friday at* 10.45.

PROFESSOR DOLBEAR.

Chemistry 1. General Chemistry. Lectures, recitations, and laboratory work. *Three hours a week.* PROFESSOR DURKEE.

Biology 2. General Biology. Lectures, *Monday and Friday at* 11.45; laboratory work, *Tuesday and Thursday from* 2 *to* 4.

PROFESSOR KINGSLEY.

Physical Training.

Sophomore Year.

English 2. The Theory and Practice of Composition. Lectures and readings; criticism and discussion of themes. *Monday*, *Wednesday, and Friday at* 11.45. MR. WHITTEMORE.

German 2. As above.

or

German 3. First half-year. Course for the rapid reading of modern prose. Scheffel, Ekkehard; Freytag. *Monday*, *Wednesday*, *and Friday at* 9.45. PROFESSOR FAY.

and

Biological German. Second half-year. Reading of some important biological work intended to familiarize the student with the vocabulary of biology. *Two hours a week.* PROFESSOR KINGSLEY.

French 2. (For those entering with German.)

Biology 3. General Biology. Lectures, *Monday and Friday at* 4; laboratory work (four hours), *Monday*, *Wednesday*, *and Friday from* 2 *to* 4. PROFESSOR KINGSLEY.

Mathematics 1. College Algebra; Solid Geometry; Plane Trigonometry. Applications of Plane Trigonometry. *Monday, Wednesday, and Friday at* 8.45 (Division 1); *at* 9.45 (Division 2).

PROFESSOR BROWN.

Chemistry 2. Qualitative Analysis. Basic Analysis. Lectures, laboratory work, and recitations. *Tuesday and Thursday from* 2 *to* 5 (*first half-year*). PROFESSOR DURKEE.

Chemistry 3. Qualitative Analysis. Acids; Analysis of Salts, Commercial and Natural Products. Lectures, laboratory work, and recitations. *Tuesday and Thursday from* 2 *to* 5 (*second half-year*).

PROFESSOR DURKEE.

Physical Training.

Junior Year.

English 11. General View of English Literature. Lectures, examinations, and required reading. *Monday at* 10.45.

MR. EARLE, ASSISTANT PROFESSOR WADE,
PROFESSOR KNIGHT, PROFESSOR MAULSBY.

German 3 and Biological German (for those entering with French), as above.

Physics 4. Physical Laboratory. Mechanics, Sound, Heat, and Light. *Six hours a week* (*second half-year*). MR. H. G. CHASE.

Chemistry 10. Organic Chemistry. Lectures and recitations. Open to students who have taken 1. *Three hours a week* (*first half-year*).

Biology 4. Elementary Physiology. Lectures, demonstrations, and recitations. *Tuesday, Thursday, and Saturday at* 8.45 (*first half-year*). PROFESSOR KINGSLEY.

Biology 5. Histology. A study of the normal tissues of the vertebrates, including microscopical technique. One lecture and four hours of laboratory work. *Hours to be arranged by the instructor.*

PROFESSOR KINGSLEY.

Biology 6. Embryology. One lecture and four hours of laboratory work. *Hours to be arranged by the instructor.*

PROFESSOR KINGSLEY.

Senior Year.

Philosophy 1. Introductory course. History of Philosophy. Lectures and examinations. *Monday, Wednesday, and Friday at* 9.45 (*first half-year*). DR. CUSHMAN.

Philosophy 2. Psychology. Lectures and elementary experiments. *Monday, Wednesday, and Friday at* 9.45 (*second half-year*).
DR. CUSHMAN.

Chemistry 6. Crystallography and Determinative Mineralogy. Lectures and laboratory work. *Two hours a week* (*first half-year*).
PROFESSOR DURKEE.

Geology 2. Geology. *Tuesday, Thursday, and Saturday at* 9.45.
PROFESSOR KINGSLEY.

Special work (six term hours) in Biology, Chemistry, or Electricity.

COURSE IN BIOLOGY.

PROFESSOR KINGSLEY.

Freshman Year.

As in the Freshman year of the course in General Science.

Sophomore Year.

As in the Sophomore year of the course in General Science.

Junior Year.

English 11, German 3 (first half-year), and **Biological German** (second half-year, for those entering with French), **Biology 4, 5, and 6**, as in the Junior year of the course in General Science.

Philosophy 1 and 2, as in the Senior year of the course in General Science.

Chemistry 10. Organic Chemistry. Lectures and recitations. *Three hours a week* (*first half-year*). DR. LEIGHTON.

Senior Year.

Chemistry 6 and Geology 2, as in the Senior year of the course in General Science.

Biology 9. General Morphology. Three lectures each week upon the anatomy, physiology, and embryology of selected groups, with discussion of special problems. PROFESSOR KINGSLEY.

Human Anatomy (at the Tufts Medical School).

Special Research in Biology, including dissertation. *Twelve hours.*

MEDICAL PREPARATORY COURSE.

PROFESSOR KINGSLEY.

Freshman Year.

As in the Freshman year of the course in General Science.

Sophomore Year.

As in the Sophomore year of the course in General Science.

Junior Year.

As in the Junior year of the course in Biology.

Senior Year.

Political Science 1. Political Economy. Text-book work, lectures, and independent investigation dealing with the history of economics, theories of production, consumption, and distribution; problems of profits, wages, and labor. *Tuesday, Thursday, and Saturday at* 8.45. PRESIDENT CAPEN.

Philosophy 3. Logic, especially deductive. *Tuesday, Thursday, and Saturday at* 10.45 (*second half-year*). PROFESSOR SHIPMAN.

Philosophy 5. Ethics, historical and constructive. Theses, lectures, and text-book. *Tuesday, Thursday, and Saturday at* 9.45 (*first half-year*). DR. CUSHMAN.

Human Anatomy and Physiology (at Tufts Medical School).

Medical Chemistry (at Tufts Medical School).

*COURSE IN CHEMISTRY.

PROFESSOR DURKEE.

Freshman Year.

English 1. Composition. Lectures, discussion of papers. *One hour a week.* PROFESSOR SHIPMAN.

German 1. Elementary German. Joynes-Meissner Grammar, with Lewis's Exercises; Bernhardt's Im Zwielicht, II.; Riehl, Burg Neideck; Buchheim's Balladen und Romanzen. *Tuesday, Thursday, and Saturday at* 9.45. PROFESSOR FAY.

or

German 2. Intermediate German. Reading of modern prose and poetry. Grammar and composition. *Tuesday, Thursday, and Saturday at* 8.45. PROFESSOR FAY AND MR. DEMETER.

Those entering with German will take German 2. Others will take German 1.

Mathematics 1. Algebra, Solid Geometry, and Trigonometry. *Three hours a week.* PROFESSOR BROWN.

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* For program hours, when these are not given, see the statement of hours under the several departments, insert between pp. 92 and 93.

Physics 1. General Physics. Lectures, recitations, and experiments. *Monday, Wednesday, and Friday at* 10.45.
PROFESSOR DOLBEAR.

Chemistry 1. Inorganic Chemistry. Lectures, recitations, and laboratory work. *Three hours a week.* PROFESSOR DURKEE.

Drawing. *Three hours a week (first half-year).*
PROFESSOR ANTHONY.

Elective. *Three hours a week (second half-year).*

Physical Training.

Sophomore Year.

English 2. Theory and Practice of Composition. Lectures and readings; criticism and discussion of themes. *Monday, Wednesday, and Friday at* 11.45. MR. WHITTEMORE.

German 2 (as above), *or*

French 1. Elementary French. The essentials of grammar with composition; reading of short works of modern authors in prose and verse. *Tuesday, Thursday, and Saturday at* 9.45.
PROFESSOR LEWIS AND MR. EARLE.

French 1 will be taken by those who entered without French. Others will take German 2.

Physics 4. Physical Laboratory. Mechanics, Sound, Light, and Heat. *Three hours a week (second half-year).*
MR. H. G. CHASE.

Chemistry 2. Basic Qualitative Analysis. Laboratory work, with lectures and recitations. *Three hours a week (first half-year).*
PROFESSOR DURKEE.

Chemistry 3. Qualitative Analysis of Acids, Salts, Commercial and Natural Products. Laboratory work, with recitations. *Three hours a week (second half-year).* PROFESSOR DURKEE.

Chemistry 4. Quantitative Analysis, Gravimetric and Volumetric; Analysis of Minerals. Lectures and laboratory work. *Three hours a week.* DR. HARTMAN.

Chemistry 10. Organic Chemistry. Lectures and recitations. *Three hours a week (first half-year).* DR. LEIGHTON.

Chemistry 11. Theoretical Chemistry. Lectures and recitations. *Three hours a week.* DR. LEIGHTON.

Physical Training.

Junior Year.

Chemistry 5. Quantitative Analysis (advanced). Analysis of Minerals, Ores, Water, Food Products, and Organic Analysis. *Three hours a week.* DR. HARTMAN.

Chemistry 6. Crystallography and Determinative Mineralogy. Lectures and recitations. *Two hours a week (first half-year).* DR. LEIGHTON.

Chemistry 8. Metallurgy. Lectures and recitations. *Two hours a week.* PROFESSOR DURKEE.

Chemistry 12. Theoretical and Inorganic Chemistry (advanced). Lectures and recitations. *Three hours a week (first half-year).* PROFESSOR MICHAEL.

Chemistry 13. Organic Chemistry (advanced). Lectures and recitations. *Three hours a week.* PROFESSOR MICHAEL.

Chemistry 14. Laboratory work with inorganic preparations. *Two hours a week (first half-year).* PROFESSOR MICHAEL AND DR. LEIGHTON.

Chemistry 15. Laboratory work in organic analysis; determination of physical constants and molecular weights; preparation of organic compounds. *Three hours a week (second half-year).* PROFESSOR MICHAEL AND DR. LEIGHTON.

Biology 1. General Biology. Lectures and laboratory work. *Three hours a week.* PROFESSOR KINGSLEY.

Biology 4. Elementary Physiology. Lectures, demonstrations, and recitations. *Three hours a week (first half-year).* PROFESSOR KINGSLEY.

Elective. *Three hours a week (second half-year).*

Senior Year.

Political Science 1. Political Economy. Text-book work, lectures, and independent investigation dealing with the history of economics, theories of production, consumption, and distribution; problems of profits, wages, and labor. *Tuesday, Thursday, and Saturday at* 8.45. PRESIDENT CAPEN.

Chemistry 7. Fire Assay. *Two hours a week (second half-year).* PROFESSOR DURKEE.

Chemistry 9. Gas Analysis. Lectures and laboratory work. *One hour a week (first half-year).* DR. HARTMAN.

Chemistry 13. Organic Chemistry (advanced). Lectures and recitations. *Three hours a week* (*first half-year*).

PROFESSOR MICHAEL.

Elective. *Three hours a week* (*first half-year*).

Research and Thesis. *Four hours a week* (*first half-year*); *ten hours a week* (*second half-year*). PROFESSOR MICHAEL.

Department of Engineering.

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VIRGIL L. LEIGHTON, A.M., PH. D., Dean Hall, 9.
Instructor in Organic Chemistry.

SAMUEL C. EARLE, A.M., Franklin St., Somerville.
Instructor in French.

Engineering Courses.

Four courses are provided in Engineering, each requiring four years' study and leading to the degree of Bachelor of Science.

The courses are: Civil Engineering, Mechanical Engineering, Electrical Engineering, and Chemical Engineering. It is believed that four years spent mainly upon technical subjects, yet providing opportunity for such language study as will enable the student to become familiar with foreign books of scientific value, will furnish a solid foundation for advanced theoretical attainment and professional skill. Considerable freedom is allowed in the choice of electives during the Junior and Senior years.

The program is so arranged as to require of each student fifty hours' work per week. This includes the time necessary for the recitation and its preparation, together with hours for laboratory and shop work.

The subjects of instruction for the Freshman year are alike for all courses. The outlines of the courses for the three following years are tabulated under the heads of Civil Engineering, page 96, Mechanical Engineering, page 98, Electrical Engineering, page 100, Chemical Engineering, page 102.

ENGINEERING COURSES.

Freshman year, alike for all courses.

FIRST TERM.	No.	Page	SECOND TERM.	No.	Page.
Algebra	1	104	Analytical Geometry	5	104
Trigonometry	3	104	Descriptive Geometry	21	106
Mechanical Drawing	20	106	Mechanical Drawing	20	106
Lettering	22	106	Pattern Making	32	108
Carpentry, Turning, and Foundry	30	108	Physics	60	112
Physics	60	112	English	100	118
English	100	118	French or	111	120
French or	111	120	German	116	120
German	116	120	Physical Training	125	120
Physical Training	125	120			

CIVIL ENGINEERING.

The four years' course leading to the degree of Bachelor of Science in Civil Engineering is designed to give a thorough grounding in the principles underlying all professional engineering. Instruction is given by means of text-books, lectures, laboratory work, and practice in the field and drafting-room. Recitations, whether upon lectures or text-books, are intended to secure thoroughness. This is best accomplished by numerous practical applications rather than by the exclusive study of theory. It is expected that the student will devote at least two hours to the preparation of each recitation. Specialization is not allowed to encroach upon the time required for the training in fundamental principles, and only in the thesis work of the Senior year can it be systematically carried on. The subject of the thesis is selected by the student under the advice of his professor.

In the Junior and Senior years the student is allowed considerable freedom in electing courses from other departments. By this means he may broaden his engineering education or anticipate some of the more special work of his Senior year.

The course comprises a very thorough training in Mathematics, extending over the first three years, and allowing for electives in the Senior year. English, Modern Language, Chemistry, and Physics are pursued during the first two years and during a part of the third. The more elementary technical training is also given during this period. This is followed by work of a distinctively engineering character, including Surveying, Hydraulics, Highways, Railroads, Bridges, Masonry, Applied Mechanics, Graphic Statics, and Structural Design.

CIVIL ENGINEERING.

Freshman year alike for all courses. See page 95.

SOPHOMORE.

First Term.	No.	Page.	Second Term.	No.	Page.
Calculus	7	104	Calculus	7	104
Technical Sketching	23	106	Forging	34	108
Mechanism	25	106	General Chemistry	40	110
General Chemistry	40	110	Physical Laboratory	62	112
Surveying	80	114	Surveying	81	114
English	101	118	English	101	118
French or	112	120	French or	112	120
German	117	120	German	117	120
Physical Training	125	120	Physical Training	125	120
			Elective (not required)		
			Machine Drawing	26	106

JUNIOR.

First Term.	No	Page.	Second Term.	No.	Page.
Calculus	8	104	Differential Equations	9	104
Qualitative Analysis	42	110	Electrical Laboratory	63	112
Electrical Laboratory	63	112	Topography	82	114
Topography	82	114	Masonry	91	116
Pure Mechanics	92	116	Applied Mechanics	93	116
Steam Engine	96	116	Mechanical Laboratory	94	116
English Literature	106	118	English Literature	106	118
* *One of the following electives:*			* *Two of the following electives:*		
Machine Drawing	26	106	Machine Drawing	26	106
Machine Shop	35	108	Machine Shop	35	108
Electricity and Magnetism	64	112	Dynamo Electric Machinery	67	112
English		118	Metallurgy	47	110
Modern Languages		120	English		118
			Modern Languages		120

SENIOR.

First Term.	No.	Page.	Second Term.	No.	Page.
Railroad Surveying	84	114	Highways	83	114
Railroad Engineering	85	114	Railroad Engineering	85	114
Roofs and Bridges	87	114	Structural Design	95	116
Hydraulics	90	116	Thesis		
Structural Design	95	116	* *Two of the following electives:*		
Political Economy	120	120			
* *One of the following electives:*			Mathematics		104
			Quantitative Analysis	51	110
Mathematics		104	Applied Chemistry	55	110
Quantitative Analysis	51	110	Assaying	57	110
Mineralogy	49	110	Theoretical Chemistry	59	110
Gas Analysis	53	110	Higher Surveying	86	114
Electricity	72	112	Bridge Design	88	114
Graphic Statics	89	114	English		118
English		118	Modern Languages		120
Modern Languages		120			

* One and two approved elective.

MECHANICAL ENGINEERING.

It is the aim of this department to so instruct the student in the various subjects that he will be enabled to apply scientific principles to the design of a machine or the proper arrangement of any mechanical plant. In the earlier part of his studies the work common to all engineering courses embraces the careful study of Mathematics, Physics, and Chemistry, which have important bearing upon his subsequent study of the properties of materials used by the engineer. Elementary Technical Drawing and Descriptive Geometry receive careful attention at the beginning of the course. The latter is further developed in its application to practical problems and the study of mechanism.

A systematic study of steam and its application involves much of the Junior and Senior course. The principles involved in the generation and application of power, the management of a boiler and engine, the setting of valves, and use of the indicator, are carefully considered. This is followed by a brief course in Thermodynamics, including the mechanical theory of heat, property of gases and steam. Steam Engineering includes the study of the steam-engine, compound and multiple expansion, and of steam boilers of various types ; the dimensions for developing a required power ; the material and sizes of parts requisite for strength and endurance ; the effect and balance of reciprocating parts and the various kinds of valve motions. Practice is given in engine and boiler testing, and a design with working drawings is required of each student.

The courses also comprise much of electrical engineering, and elective work in civil engineering is also open to the student of this department.

Instruction in Carpentry, Wood-turning, Moulding, Pattern-making, Forging, Vise, and Machine-tool work is given during the course.

MECHANICAL ENGINEERING.

Freshman year alike for all courses. See page 95.

SOPHOMORE.

First Term.	No.	Page.	Second Term.	No.	Page.
Calculus	7	104	Calculus	7	104
Technical Sketching	23	106	Machine Drawing	26	106
Mechanism	25	106	Forging	34	108
General Chemistry	40	110	General Chemistry	40	110
Surveying	80	114	Physical Laboratory	62	112
English	101	118	English	101	118
French or	112	120	French or	112	120
German	117	120	German	117	120
Physical Training	125	120	Physical Training	125	120
			Elective (not required)		
			Surveying	81	114

JUNIOR.

First Term.	No.	Page.	Second Term.	No.	Page.
Calculus	8	104	Differential Equations	9	104
Machine Drawing	27	106	Machine Design	28	106
Qualitative Analysis	42	110	Machine Shop	35	108
Electrical Laboratory	63	112	Electrical Laboratory	63	112
Pure Mechanics	92	116	Applied Mechanics	93	116
Steam Engine	96	116	Mechanical Laboratory	94	116
English Literature	106	118	Steam Engineering	97	116
* *One of the following*			English Literature	106	118
electives:			* *One of the following*		
Electricity and Magnetism	64	112	*electives:*		
Topography	82	114	Dynamo Electric Machinery	67	112
English		118	Topography	82	114
Modern Languages		120	Masonry	91	116
			English		118
			Modern Languages		102

SENIOR.

First Term.	No.	Page.	Second Term.	No.	Page.
Machine Design	29	106	Engineering Laboratory	99	114
Hydraulics	90	116	Structural Design	95	114
Steam Engineering	98	116	Thesis		
Political Economy	120	120	* *Two of the following*		
* *Two of the following*			*electives:*		
electives:			Mathematics		104
Mathematics		104	Quantitative Analysis	51	110
Quantitative Analysis	51	110	Applied Chemistry	55	110
Gas Analysis	53	110	Theoretical Chemistry	59	110
Electricity	72	112	Electricity	73	112
Roofs and Bridges	87	114	Bridge Design	88	114
Graphic Statics	89	114	English		118
English		118	Modern Languages		120
Modern Languages		120			

*One and two approved elective.

ELECTRICAL ENGINEERING.

The aim of this course is to fit men to deal intelligently with electrical problems likely to be presented to the practical engineer.

With this end in view, Mathematics and Drawing are pursued through nearly the entire course.

Physics and Mechanics, both pure and applied, receive much attention, while more than half of the Senior year is devoted to the study of Electricity, by means of practical work in the Electrical Laboratory together with recitations and lectures on the principles involved. The purely electrical work extends over the Junior and Senior years of the course, the Junior year being devoted to the more elementary theory and the practice of the simpler tests and measurements, the Senior year to the more advanced theory and the practice of the more complex tests and measurements.

The calibration and standardization of electrical instruments receives due attention. The magnetic properties of irons, armature reactions in dynamos, and the efficiency and localization of losses in electrical machinery are carefully studied.

The theory of shunts and the Wheatstone bridge leads to the consideration of the distribution of current and potential in networks of conductors.

Much time is given to design and construction. Most students during their course construct or assist in the construction of some piece of electrical machinery of commercial dimensions.

The theory of alternating currents, both single and polyphase, is quite fully developed; and the many important practical problems thus evolved are carefully treated both by numerical computation and by graphic representation.

A few weeks are devoted to the study of Maxwell's theory and its experimental confirmation by Hertz.

ELECTRICAL ENGINEERING.

Freshman year alike for all courses. See page 95.

SOPHOMORE.

First Term.	No.	Page.	Second Term.	No.	Page.
Calculus	7	104	Calculus	7	104
Technical Sketching	23	106	Machine Drawing	26	106
Mechanism	25	106	Forging	34	108
General Chemistry	40	110	General Chemistry	40	110
Surveying	80	114	Physical Laboratory	62	112
English	101	118	English	101	118
French or	112	120	French or	112	120
German	117	120	German	117	120
Physical Training	125	120	Physical Training	125	120
			Elective (not required)		
			Surveying	81	114

JUNIOR.

First Term.	No.	Page.	Second Term.	No.	Page.
Calculus	8	104	Differential Equations	9	104
Machine Drawing	27	106	Machine Design	28	106
Qualitative Analysis	42	110	Electrical Laboratory	63	112
Electrical Laboratory	63	112	Electricity	66	112
Pure Mechanics	92	116	Dynamo Electric Machinery	67	112
Steam Engine	96	116	Applied Mechanics	93	116
English Literature	106	118	Mechanical Laboratory	94	116
* *One of the following electives:*			English Literature	106	118
Electricity and Magnetism	64	112	* *One of the following electives:*		
Topography	82	114	Machine Shop	35	108
English		118	Metallurgy	47	110
Modern Languages		120	Topography	82	114
			Masonry	91	116
			English		118
			Modern Languages		120

SENIOR.

First Term.	No.	Page.	Second Term.	No.	Page.
Electricity	72	112	Electricity	73	112
Electrical Laboratory	69	112	Electrical Laboratory	69	112
Hydraulics	90	116	Thesis		
Political Economy	120	120	* *Two of the following electives:*		
* *Two of the following electives:*			Mathematics		104
Mathematics		104	Quantitative Analysis	51	110
Machine Design	29	106	Applied Chemistry	55	110
Quantitative Analysis	51	110	Assaying	57	110
Gas Analysis	53	110	Theoretical Chemistry	59	110
Mineralogy	49	110	Highways	83	114
Mathematics of Alternating Currents	74	112	Railroad Engineering	85	114
Railroad Engineering	85	114	Bridge Design	88	114
Roofs and Bridges	87	114	Structural Design	95	116
Graphic Statics	89	114	English		118
English		118	Modern Languages		120
Modern Languages		120			

* **One and two approved elective.**

CHEMICAL ENGINEERING.

This course covers a period of four years, and leads to the degree of Bachelor of Science in Chemical Engineering. The subjects in this course have been arranged to give the training in Mathematics, Physics, Chemistry, and Mechanical Engineering that will assist the graduates of the department in solving the mechanical and chemical problems that may present themselves when chemistry is applied in practical ways. Subjects intended for general training, the greater part of the pure mathematics, and the less technical engineering subjects have purposely been introduced early in the course. This arrangement allows much time for the study of chemical and advanced mechanical engineering subjects in the last two years. The mathematical, physical, and general engineering subjects, as well as subjects that are intended for general culture, correspond, for the most part, to those in the Mechanical Engineering course. In chemistry the subjects are numerous enough to thoroughly train the students in theoretical and descriptive inorganic and organic chemistry, to give them a working knowledge of the different branches of chemical analysis, and to make them familiar with many of the practical applications of chemistry. The chemical and engineering subjects are taught, so far as it is possible, in the laboratories, and excursions are made from time to time to plants where technical chemical operations are performed.

Young men who graduate from the Chemical Engineering Course find employment in constructing and operating plants where chemistry is applied commercially, such as gas-works, dye-works, bleacheries, paper and pulp mills, acid and alkali manufactories.

CHEMICAL ENGINEERING.

Freshman year alike for all courses. See page 95.

SOPHOMORE.

FIRST TERM.	No.	Page.	SECOND TERM.	No.	Page.
Calculus	7	104	Calculus	7	104
Technical Sketching	23	106	Machine Drawing	26	106
Mechanism	25	106	Forging	34	108
General Chemistry	40	110	General Chemistry	40	110
Surveying	80	114	Physical Laboratory	62	112
English	101	118	English	101	118
French or	112	120	French or	112	120
German	117	120	German	117	120
Physical Training	125	120	Physical Training	125	120

JUNIOR.

FIRST TERM.	No.	Page.	SECOND TERM.	No.	Page.
Calculus	8	104	Differential Equations	9	104
Qualitative Analysis	42	110	Qualitative Analysis	43	110
Organic Chemistry	45	110	Metallurgy	47	110
Electrical Laboratory	63	112	Electrical Laboratory	63	112
Pure Mechanics	92	116	Applied Mechanics	93	116
Steam Engine	96	116	Mechanical Laboratory	94	116
English Literature	106	118	English Literature	106	118
			* *Two of the following electives:*		
			Machine Shop	35	108
			Dynamo Electric Machinery	67	112
			Masonry	91	116

SENIOR.

FIRST TERM.	No.	Page.	SECOND TERM.	No.	Page.
Machine Drawing	27	106	Quantitative Analysis	51	110
Mineralogy	49	110	Applied Chemistry	55	110
Quantitative Analysis	51	110	Assaying	57	110
Gas Analysis	53	110	Theoretical Chemistry	59	110
Hydraulics	90	116	Thesis		
Political Economy	120	120	* *One of the following electives:*		
* *Two of the following electives:*			Mathematics		104
Mathematics		104	Machine Design	28	106
Electricity	72	112	Structural Design	95	116
Roofs and Bridges	87	114	English		118
Graphic Statics	89	114	Modern Languages		120
English		118			
Modern Languages		120			

* One and two approved elective.

MATHEMATICS.

The required work in Mathematics covers the first three years of the course. During this period the courses pursued are treated with special reference to the demands of the engineering profession. The instruction, while having this end in view, endeavors to train the mathematical faculties so that the student may acquire the ability for research work. On this account, as the course progresses the method of instruction varies gradually from text-book work to lectures by the instructor.

The extent of the course in the required branches is limited to subjects of importance to engineers; viz., in Algebra the subjects usually found in college Algebras previous to the Theory of Equations; in Trigonometry the ordinary formulæ of relations between angles and the applications in the solution of right and oblique triangles; in Analytic Geometry the properties of the straight line and the conic sections; in Calculus the most important principles, such as are embodied in Osborne's Calculus, supplemented by a course of lectures on the applications of the subjects to physical and mechanical phenomena; in Differential Equations the solution and geometrical interpretation of total differential equations of first and second orders.

To those who desire advanced work the following list of electives has been prepared: Advanced Algebra, involving the theory of equations and solutions of higher degree equations; Spherical Trigonometry, which is required for those electing Higher Surveying; Solid Analytic Geometry, the Theory of Determinants and Least Squares. Vector Analysis and Theory of Functions are offered to allow the student to obtain the necessary instruments for investigating the more complex physical phenomena.

MATHEMATICS.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
1	Algebra	1	1	4	1	Wren	C, E, M, Ch
2	Adv. Algebra, Theory of Equations	1	2	3	1	Brown	Elective
3	Plane Trigonometry	1	1	2	1	Wren	C, E, M, Ch
4	Spherical Trigonometry	4	1	3	1	Brown	Elective
5	Plane Analytic Geometry	1	2	4	1	Wren	C, E, M, Ch
6	Solid Analytic Geometry	4	2	3	1	Brown	Elective
7	Differential and Integral Calculus	2	1, 2	3	1	Wren	C, E, M, Ch
8	Advanced Differential and Integral Calculus . . .	3	1	2	1	Wren	C, E, M, Ch
9	Differential Equations	3	2	2	1	Wren	C, E, M, Ch
10	Theory of Determinants	4	1	3	1	Wren	Elective
11	Theory of Least Squares	4	2	2	1	Wren	Elective
12	Vector Analysis	4	1	3	1	Wren	Elective
13	Theory of Functions	4	2	3	1	Wren	Elective

DRAWING.

The threefold object of the studies pursued in this department is: first, the acquirement of precision and rapidity in the manipulation of instruments, together with the development of the theory of technical drawing; second, a study of the technique of graphic expression as employed in the modern drafting-room; third, a practical application of the preceding to the investigation of problems susceptible of a graphic solution, including the principles of machine design.

The course in Mechanical Drawing comprises geometrical drawing, the various systems of projection, graphic solution of conic sections, tinting, shading, tracing, etc., the helix and its application to screw-threads and bolts.

Descriptive Geometry is taught by means of lectures, recitations, and the graphic solution of a great number of problems. The course includes the elements of warped surfaces.

Lettering and Technical Sketching are a necessary preparation to the courses in machine and topographical drawing.

Both the Elementary and Advanced Machine Drawing classes are conducted according to the systems of progressive draftsmen. All details are drawn from sketches made by the students, nothing in the nature of a copy being permitted.

Mechanism, theoretical and as applied to the construction of gear-teeth, cams, etc., is designed to involve the minimum of drawing in obtaining a thorough mastery of the principles.

Machine Design is begun by the solution of simple problems involving only the elementary principles of applied mechanics, but requiring careful thought, close observation, and good judgment. A systematic training of the latter is made of first importance. In the advanced course the student is required to design the parts of simple mechanism from data and sketches only, while in thesis design he is made responsible for the entire design and estimates.

DRAWING.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
20	Mechanical Drawing	1	1, 2	3	2	Anthony Daniels	C, E, M, Ch
21	Descriptive Geometry	1	2	4	1	Anthony Daniels	C, E, M, Ch
22	Lettering	1	1	1	2	Daniels	C, E, M, Ch
23	Technical Sketching	2	1	1	2	Anthony	C, E, M, Ch
25	Mechanism	2	1	2 1	1 3	Anthony	C, E, M, Ch
26	Elementary Machine Drawing	2	2	2	2	Anthony	E, M, Ch
27	Advanced Machine Drawing	3	1	2	2	C. H. Chase	E, M, Ch *
28	Elementary Machine Design	3	2	2	2½	Anthony	E, M
29	Advanced Machine Design	4	1	2	3	Anthony	M

* Fourth Year.

SHOPWORK.

Work in the shops is conducted in general upon the laboratory plan, each student being required to complete, satisfactorily, a given amount of work.

The engineer or draftsman should have clearly in mind the processes by which a design is to become a reality, and to this end it is a primary object of the course to render the student familiar with the various processes of construction and the manipulation of materials. The object is not to produce expert workmen, — although a reasonable amount of skill is required, — but to give such training as will serve in the direction and supervision of the work of others.

The course is progressive and maintains a close relation with the courses in drawing and design, much of the work in design being executed in the shop from drawings prepared in the drafting-room.

An examination of the course will show, first, a term given to acquiring experience in the use of the ordinary tools in carpentry, and the use of the tools and lathe in wood-turning. Following this, moulding or foundry work is also taken up in preparation for pattern-making, which constitutes the remainder of the Freshman course.

Forging gives an introduction to the work with iron and steel, and shows the different qualities of the material for bending, drawing, welding, etc.

In the Junior year instruction upon metal work is continued, with vise and machine tools.

Project work, which usually carries a design through from the pattern to the finished product, requires experience in pattern-making and machine work, and gives an opportunity for the extension of the course in machine-shop instruction upon special lines.

SHOPWORK.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
30	Carpentry Wood-Turning Foundry *	1	1	2	3	C. H. Chase	C, E, M, Ch
32	Pattern-making	1	2	1	3	C. H. Chase	C, E, M, Ch
34	Forging	2	2	1	3		C, E, M
35	Chipping and Filing Machine Tools †	3	2	2	3	C. H. Chase	E, M
38	Project	4	2	3	3	C. H. Chase	Elective

* Carpentry 8 weeks.
Turning 4 "
Foundry 4 "

† Civil Engineers may elect this during the first term.

CHEMISTRY.

General Inorganic Chemistry (40). Lectures, recitations, and laboratory work. Theoretical, descriptive inorganic chemistry, including a brief account of the carbon compounds and principal technical pocesses.

Quantitative Analysis (42). Lectures and laboratory work. Students, under direction, perform experiments and develop schemes for the division of the metals into groups, and for the separation and detection of the metals in each group. Reactions are written, and analytical details are discussed. Six known solutions and thirteen unknown are correctly analyzed.

Qualitative Analysis (43). Lectures and laboratory work. Treatment of substances to effect solution; detection of mineral acids; complete analysis of inorganic solids. The work involves the correct analysis of thirteen solid substances.

Quantitative Analysis (51) is mainly taught by laboratory work. The course includes both gravimetric and volumetric methods. The substances analyzed are minerals and salts.

Organic Chemistry (45). Lectures and recitations, covering the general principles of descriptive and theoretical organic chemistry.

Mineralogy (49) is taught by lectures, recitations, and laboratory work. The subject is intended to show the use of the blow-pipe, together with other tests that are of special value in determining minerals. Crystallography is taken up.

Metallurgy (47). A course of lectures and recitations relating to the more important technical methods of extracting iron, copper, and silver.

Assaying (57), mainly laboratory work, is designed to familiarize the student with the practical methods of sampling and assaying gold, silver, and lead ores.

Gas Analysis (53). Technical methods. Laboratory work.

Theoretical Chemistry (59). Lectures and recitations. Treats somewhat in detail the principal theories of chemical science.

Applied Chemistry (55) is taught by lectures and during excursions to chemical plants. Lectures relate to technical applications of inorganic and organic chemistry.

CHEMISTRY.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	Preparation Required.	INSTRUCTOR.	COURSE.
40	General Chemistry	2	1, 2	3	1, 2		Durkee	C, E, M, Ch
42	Qualitative Analysis	3	1	2	3	40	Durkee	C, E, M, Ch
43	Qualitative Analysis	3	2	2	3	40 42	Durkee	Ch
45	Organic Chemistry	3	1	3	1	40	Leighton	Ch
47	Metallurgy	3	2	2	1	40	Durkee	Ch
49	Mineralogy	4	1	2	1, 2	40 42 43	Leighton	Ch
51	Quantitative Analysis	4	1, 2	2	3	40	Hartman	Ch
53	Gas Analysis	4	1	1	2	40	Hartman	Ch
55	Applied Chemistry	4	2	2	1	40 45	Durkee	Ch
57	Assaying	4	2	2	2	40	Durkee	Ch
59	Theoretical Chemistry	4	2	2	1	40	Leighton	Ch

PHYSICS AND ELECTRICITY.

Instruction in Physics (60) is given by lectures fully illustrated by experiment. The aim is to present the science of Physics not as a series of detached subjects, but as a consistent body of doctrine in which mechanical principles hold throughout, and from which all the various phenomena are deducible.

The laboratory work (62) begins with the more important quantitative determinations in mechanics, sound, light, and heat, such as the determination of mass, density, elasticity, force of gravity, velocity of sound, pitch, focal length of lenses, index of refraction, wave length of light, thermometry, specific head and coefficient of expansion of solids.

An elective elementary course in Electricity and Magnetism (64) is offered for those who may wish to supplement the lecture course in General Physics.

In the laboratory course in Electricity (63) much attention is given to the Wheatstone bridge and the measurement of resistance. Careful study is made of the magnetic properties of iron.

The course in Dynamo Electric Machinery (67), based upon S. P. Thompson's treatise, is very thorough and is supplemented by the experimental study of machines in the dynamo-room.

Great importance is attached to the course in Electrical Calculations (66), wherein a considerable number of practical problems are presented to the student for solution.

The study of Alternating Currents (72 and 73) occupies the larger part of the Senior year. The treatises of Fleming, Steinmetz, and S. P. Thompson are used as text-books.

The general experimental study of Alternating Currents (69) and Alternating Current Machinery is carried on at the same time in the laboratory.

Honor students and those electing advanced electrical work read such works as "Alternating Currents," by Bedell & Crehore, "Principles of the Transformer," by Bedell, "Hysteresis in Iron and Other Metals," by Ewing, etc., and have particular investigations assigned them in the laboratory.

PHYSICS AND ELECTRICITY.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
60	Physics (Lectures)	1	1, 2	3	1	Dolbear	C, E, M, Ch
62	Physical Laboratory	2	2	2	3	H. G. Chase	C, E, M, Ch
63	Electrical Laboratory	3	1 2	3 2	2 2	H. G. Chase Hooper	C, E, M, Ch
64	Electricity and Magnetism	3	1	3	1	H. G. Chase	Elective
66	Electricity (Problems)	3	2	2	1	Hooper	E
67	Dynamo Electric Machinery	3	2	3	1	Hooper	E
69	Electrical Laboratory	4	1, 2	3	2	Hooper	E
72	Electricity (Current Induction)	4	1	4	1	Hooper	E
73	Electricity (Alternating Currents)	4	2	3	1	Hooper	E
74	Alternating Currents, Mathematical Treatment	4	1	3	1	Hooper	Elective
76	Magnetism, Theory and Phenomena of	4	2	3	1	Hooper	Elective

ENGINEERING.— CIVIL AND MECHANICAL.

Surveying (80, 81) includes the theory and practice of Land Surveying and the theory of Topography. The compass, level, and transit are used, and other instruments are described. Text-book work is taken when weather forbids field operations. Plotting and computations accompany field and recitation work, and lectures are given throughout the year.

In Topography (82) a complete survey, based upon a careful triangulation, is made and mapped. When field practice ceases lessons are given in Topographical Drawing in ink and colors, in Stereotomy, and in Plaster Modelling.

Highways (83) considers the location and construction of country roads and city streets; the physical properties of earth, broken stone, and various pavements used as road surface; economy of traction, grades, construction and maintenance. Work is given by text-books, lectures, and highway reports.

Railroad Surveying (84) includes laying out curves, turnouts, switches, etc., and designing some railroad structure.

Railroad Engineering (85) embraces the theory and practice of location, construction, maintenance, and operation, and is carried on in the recitation and drafting rooms, and in the field. Careful study is made of location as influenced by train resistance, traffic, motive power, cost of construction, and operating expenses. Students form field parties and obtain data for constructing a map and profile. The paper location is then put upon the ground and staked for construction.

Higher Surveying (86) includes Practical Astronomy and Elementary Geodesy, developed by text-books, lectures, and observations.

Roofs and Bridges (87) is largely a study of various methods of computing stresses in common forms of trusses.

Bridge Design (88) is an elective course in framed structures of wood and steel. Must be preceded by 87.

Graphic Statics (89) begins with fundamental principles and is extended to common engineering problems: forces and stresses in frames and arches, beams with various loads; inertia diagrams, graphic integration, centre of gravity of displacement, and graphic representation of laws, and problems.

ENGINEERING.— CIVIL AND MECHANICAL

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
80	Surveying	2	1	2	1, 2	Daniels	C, E, M, Ch
81	Surveying	2	2	2	1, 2	Daniels	C
82	Topography	3	1, 2	2	2, 3	Daniels	C
83	Highways	4	2*	3	1, 2	Bray	C
84	Railroad Surveying	4	1	2	2, 3	Daniels	C
85	Railroad Engineering	4	1, 2†	3	1, 2	Bray	C
86	Higher Surveying	4	2	2	1	Daniels	Elective
87	Roofs and Bridges	4	1	3	1, 2	Daniels	C
88	Bridge Design	4	2	3	2	Daniels	Elective
89	Graphic Statics	4	1	2	2, 3	Bray	Elective

* Last half of term. † First half of term.

ENGINEERING.—CIVIL AND MECHANICAL.

Hydraulics (90), theoretical and applied, includes the laws relating to the pressure and flow of water in pipes, discharge over weirs, through tubes, conduits, etc. It is accompanied by numerous problems.

Masonry (91) involves a consideration of the materials of construction; the method of preparing and using the material; foundation and structure. It is taught by lectures, text-books, and inspection of work in process of construction.

Pure Mechanics (92) is a mathematical treatment of the gen eral principles relating to velocity, force, energy, etc.

Applied Mechanics (93) is a continuation of (92), wherein particular attention is given to the strength of materials and of structures. Throughout the course numerous practical problems illustrate the principles considered.

Applied Mechanics, Laboratory (94). This course is carried on in connection with the study of Applied Mechanics, and consists of the testing of the strength of materials of construction. Experiments are made to determine the character of materials as to elasticity, change of form, etc. Cement tests and measure of stresses in frames are also made.

Structural Design (95). This work is carried on in the lecture and drafting room, and is based upon the principles developed in the previous engineering studies. The methods pursued are precisely those of a regularly organized engineer's office.

Steam Engine (96). The fundamental principle involved in the generation of steam is followed by a study of engine details, valve gears, and the valve diagram. The theory of the indicator is taught, and applied to the making of simple tests.

Steam Engineering (97). This course includes the thermodynamics of the steam engine and other heat engines, together with the study of various types of valve gears.

Steam Engineering (98) includes problems relating to the design and construction of steam engines involving the strength and proportion of parts, the consideration of multiple expansion engines, and steam boilers. Practice is also given in engine and boiler testing.

ENGINEERING.— CIVIL AND MECHANICAL.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
90	Hydraulics	4	1	3	1	Bray	C, E, M, Ch
91	Masonry	3	2	3	1	Bray	C
92	Pure Mechanics	3	1	3	1	Hooper	C, E, M, Ch
93	Applied Mechanics	3	2	3	1	Bray	C, E, M, Ch
94	Applied Mechanics, Laboratory	3	2	1	2	Bray	C, E, M, Ch
95	Structural Design	4	1, 2	2	2, 3	Bray	C
96	Steam Engine	3	1	3	1	Anthony	C, E, M, Ch
97	Steam Engineering	3	2	3	1	Bray	M
98	Steam Engineering	4	1	3	1	Bray	M
99	Engineering, Laboratory	4	2	3	2	Bray	M

ENGLISH.

Composition is required during the Freshman and Sophomore years. English 1 (100) is chiefly extemporaneous, and is accompanied by lectures and the discussion of papers. The more formal study begins with English 2 (101) in the Sophomore year, and includes with theory a large amount of practice, together with the criticism and discussion of themes.

The aim in English 3 (102) is to emphasize the fundamental function of expository writing, and to aid the student to gain clearness, ease, and rapidness of expression. The written work consists of five themes each week. The subject is open only to those who have attained Grade B in English 2.

English 4 (103). Three kinds of writing — narration, description, and exposition — are discussed, and specimens from eminent authors are studied. Two themes each week are required.

English 5 (104). Argumentative Composition; a study of its requirements as observed by successful writers, with constant practice by the student. The equivalent of two themes each week is required.

English 6 (105). Essays, with special attention to the construction of extended discourse. Weekly papers, plans, free discussion, individual criticism.

In the study of English Literature (106) intelligent appreciation of the author's thought, and of his characteristic mode of expression, is the immediate result held in view. Biographical and philological details, the effect of environment, and the mass of published criticism that clusters about the great names are not neglected, although given a subordinate place. The method at first pursued demands attentive reading of much more than can be considered in the class-room, frequent written expression of literary judgments, and the occasional private investigation of topics not otherwise treated.

The course in Shakespeare (108 and 109) includes the reading of selected plays, lectures, brief critical essays, and examinations. 109 cannot be taken before 108.

ENGLISH.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
100	English 1	1	1, 2	1	1	Shipman	C, E, M, Ch
101	English 2	2	1, 2	3	1	Whittemore	C, E, M, Ch
102	English 3	3 or 4	1	1	1	Whittemore	Elective
103	English 4	3 or 4	1	1	1	Whittemore	Elective
104	English 5	3 or 4	1	2	1	Shipman	Elective
105	English 6	3 or 4	1 or 2	2	1	Shipman	Elective
106	English Literature	3	1, 2	1	1	Maulsby Knight Wade Earle	C, E, M, Ch
108	Shakespeare	4	1	3	1	Maulsby	Elective
109	Shakespeare	4	2	3	1	Whittemore	Elective

MODERN LANGUAGES.

An elementary knowledge of French or German equivalent to 110 or 115 is required for admission to any course in Engineering.

The language offered in entrance will be continued during the first two years, unless the candidate for admission receives credit for the equivalent of Intermediate French (111) or Intermediate German (116), in which case he may take the alternative language for the two years; or, if he passed during his Freshman year with high credit Intermediate French or Intermediate German, he may take the alternative language during his Sophomore year. A student who has thus taken Elementary French (110) or Elementary German (115) in his Sophomore year will be expected to continue that language as an elective during his Junior year. Any subject in modern languages offered in the College may be elected by an engineer properly qualified during his Junior or Senior year, subject to the approval of the instructors in the elected subject. Those who take German pursue the regular college course, but for those engineers who take French separate subjects are offered specially adapted to their needs. Elementary French (110) is the equivalent of the work required for the entrance examination. Intermediate French (111): review of verbs and of syntactical difficulties; reading of a considerable amount of ordinary prose, with special attention paid to idiomatic translation. Advanced French (112): reading of difficult and technical prose, to enable the student to read rapidly and accurately, without translation, such French as he will find of practical value.

POLITICAL SCIENCE.

In this department are included subjects relating to Economics, Government, and Law. It includes an historical survey and a consideration of the fundamental principles of economics.

PHYSICAL TRAINING.

The aim of the department is to secure a more symmetrical development of the body, and a fuller appreciation of the value of systematic exercise. Special work is prescribed for each student, dependent on his physical examination, and class work is also conducted.

MODERN LANGUAGE.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
110	French Elementary	1	1, 2	3	1	Earle	
111	French Intermediate	1	1, 2	3	1	Earle	C, E, M, Ch*
112	French Advanced	2	1, 2	3	1	Earle	C, E, M, Ch
113	French Elective	3 or 4	1, 2	3	1		
115	German Elementary	1	1, 2	3	1	Fay	
116	German Intermediate	1	1, 2	3	1	Fay	C, E, M, Ch*
117	German Advanced	2	1, 2	3	1	Fay	C, E, M, Ch
118	German Elective	3, 4	1, 2	3	1		
	OTHER SUBJECTS.						
120	Political Economy	4	1	3	1	Capen	C, E, M, Ch
125	Physical Training	1, 2	1, 2†	3	1	Stroud	C, E, M, Ch

* One language only is required. † From the middle of November to the middle of March.

The Graduate Department.

ADMINISTRATIVE BOARD.

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INSTRUCTION.

Graduate instruction is given by the General Faculty. The advanced elective work offered to undergraduates in any department of the College of Letters is open to graduate students, and will count for the degree of Master of Arts, on condition that it be not counted for any other degree. Additional courses still more advanced may be arranged in many cases with the instructor in whose department the work is to be done.

DEGREES.

The degrees offered are Master of Arts, Electrical Engineer, Mechanical Engineer, Civil Engineer, and Doctor of Philosophy. Departments at present open to candidates for the degree of Master of Arts are: —

English.
Modern Languages.
Latin.
Greek.
History.
Mathematics.
Chemistry.
Biology.
Electricity.

The Degree of Doctor of Philosophy is offered in Chemistry and Biology.

The conditions upon which the several degrees may be obtained and the requirements of the departments are stated below.

THE DEGREE OF MASTER OF ARTS will be conferred upon graduates of Tufts College who have received the degree of Bachelor of Arts, or upon graduates of other colleges whose course of study has been equivalent to that required at Tufts College for the degree of Bachelor of Arts, upon the following conditions: —

1. They shall have completed an approved course of advanced study, including the equivalent of at least thirty term hours, in one or, at the most, two departments.

2. This course shall be pursued during a residence of not less than one year. The condition of residence may be waived by special permission, but in this case the degree cannot be taken with less than two years of graduate study.

3. The candidate shall prepare a thesis and pass a satisfactory examination before a board of three examiners appointed by the Executive Board of the Graduate Department.

4. No subject counted for the first degree will be counted for the second degree.

5. Candidates for this degree must make a written application to the Executive Board of the Graduate Department before October 1 of the college year in which the degree is to be conferred, and if the degree is not taken after one year's study they must also give a second notice three months before receiving the degree.

Graduates of Tufts College who have taken the degree of Bachelor of Philosophy, or graduates of other colleges holding a degree of similar grade, must complete the requirements for the degree of Bachelor of Arts before they can be entered as students in courses leading to the degree of Master of Arts.

THE DEGREE OF CIVIL ENGINEER, ELECTRICAL ENGINEER, OR MECHANICAL ENGINEER will be conferred upon Bachelors of Science in Civil, Electrical, or Mechanical Engineering, respectively, who shall satisfactorily pursue advanced professional study at the College for one year, under the conditions required of candidates for the degree of Master of Arts; or who shall present suitable evidence of three years of professional work, one year of which must be in a position of responsibility, in which case a certain amount of professional study will be assumed. A thesis based upon this study will be required.

The Degree of Doctor of Philosophy will be conferred upon Bachelors of Arts, Philosophy, or Science, who shall have pursued at least three years of graduate study, two years of which must be in residence. This degree will not be conferred simply on the ground of the completion of the required course of study. High attainment is necessary, and especially the power of original thought and independent investigation. The whole course of study must be devoted to one subject, and a thesis must be presented giving evidence of original research. Other special requirements may be made by the instructors in charge of the work of the candidates. Each candidate must pass a satisfactory examination before a board of three examiners appointed by the Administrative Board of the Graduate Department.

The candidate for this degree must make a written application to the Secretary of the Administrative Board of the Graduate Department at least two years before the degree is to be conferred, and his thesis must be handed to the Secretary of the above board at least two months before Commencement.

The Degree of Master of Arts may be taken by candidates for the degree of Doctor of Philosophy at the end of their first year's study, or will be conferred together with the latter degree.

DEPARTMENTS OPEN TO CANDIDATES FOR THE DEGREE OF MASTER OF ARTS.*

English. — It is assumed that candidates for the degree of Master of Arts in English will have taken, as undergraduate work, the required number of hours selected from subjects 1 to 6, and in addition, that, as major students in English, they will have fulfilled the conditions governing major students by making choice from those subjects in the department that are open to election. Subjects 7, 17, 18, 19, 21, 22, 23, 24, 25, and 26, so far as these have not been anticipated as undergraduate work, may be counted toward the master's degree, provided that the work done distinctly surpasses in quality that required of undergraduates.

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* Subject numbers referred to in these statements are those used under Departts of Instruction, pages 51 to 84.

Modern Languages. — The extended undergraduate courses offered in Modern Languages enable the candidate for the degree of Bachelor of Arts, who specializes in this department, to cover the work formerly required for the Master's degree. For those who have not taken the more advanced subjects, the department offers a full graduate course leading to the degree of Master of Arts. The work is performed in existing undergraduate classes. (See pages 55 to 59.) To enter upon this course, the candidate must have completed the equivalent of six of the Modern Language subjects, including 1 and 2 in both German and French. Of elementary subjects only Italian may be taken by such as have had the equivalent of two years of French. Graduate students whose special work is being performed in other departments are admitted to such classes in German and French, beyond subject 1, as their proficiency will allow.

Latin. — Candidates for the degree of Master of Arts in Latin must have completed satisfactorily Latin 1, 2, 3 or 4, and 5, or equivalents. Greek may be taken as minor work with Latin. A reading knowledge of German is essential, and of French and Italian is desirable, for students intending to take advanced work in Latin. Graduate students, when pursuing subjects especially designed for undergraduates, are expected to do an extra amount of work in them. The required thesis must embody the result of the special investigation of some author or period, or of some philological or archæological subject.

Greek. — Candidates for the degree of Master of Arts in Greek must have completed Greek 1, 2, 3 or 4, and 5 or 6, or equivalents for these subjects. Latin may be taken as minor work with Greek. Graduate students will be expected to do work of advanced character, whether in classes with undergraduates, or in special lines of investigation assigned by the instructor. The required thesis, on some approved topic, relating to some author, period, or philological problem, must give evidence of this advanced attainment.

History. — Every graduate student who intends to become a candidate for a degree must have taken History 1 and 4, or their equivalents. Candidates for the degree of Master of Arts must be able to read French works, and a working knowledge of German is desirable, and may in some cases be necessary. Of the subjects announced in the program of this department on pages 66 to 68, 2, 3, 5, 6, and 7 will be accepted as part of work leading to the degree of Master of Arts. In addition to these subjects work will be laid out for graduate students in such special lines as individuals may desire to pursue. Certain collateral subjects may be called for in such cases. Graduate students will be expected to do something in the way of independent investigation of a definite subject, the results to be embodied in the thesis required to obtain the degree.

Mathematics. — Graduate students in Mathematics must have passed creditably the prescribed undergraduate work in this department — Mathematics 1 — and may do graduate work from that point or from such more advanced point as they may have attained. They are required to complete all the courses offered by the department, except Mathematics 11, as stated in the Catalogue, to receive the degree of Master of Arts.

Chemistry. — Candidates for the degree of Master of Arts must have completed subjects 1, 2, 3, and 10, or their equivalents. Subjects 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, and 15 are offered for graduate students, and satisfactory work must be done in at least five of these subjects. The candidate must present an acceptable thesis and pass satisfactory examinations in all of the subjects studied.

Biology. — Candidates for the degree of Master of Arts in Biology must have already done work equivalent to Biology 2, 3, and 4; or, lacking that, they must take omitted subjects in addition to their graduate work. The work will be done in the lines of comparative anatomy, histology, or embryology, and will include a thesis embodying original research.

Electricity. — The candidate for the Master's degree in Electricity must have done substantially the work in that department required of the Bachelor of Electrical Engineering. This involves the election during his undergraduate course of studies in this department, if it is expected that the degree will be obtained within one year of graduate study.

DEPARTMENTS OPEN TO CANDIDATES FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.

Chemistry. — Candidates must be able to translate scientific German readily and accurately before beginning their work, and must have already taken subjects 1 to 7 inclusive, 9 and 10, or equivalent work. Unless previously qualified, they must take subjects 11, 12, 13, 14, 15, and 17, and devote at least one year to subject 16. Examinations in the above subjects must be satisfactorily passed, and a thesis embodying an original investigation in Chemistry must be presented.

A well-equipped laboratory is open to graduate students who may wish to pursue special lines of research, and the department is prepared to offer every facility for the encouragement of original investigations.

Biology. — Candidates must have a good working knowledge of French and German before beginning their work; they must carry on research in Animal Morphology for at least three years, two of which must be in residence, and they must have passed one summer at some seashore biological station. They must pass an examination on General Zoölogy, embracing not only the fundamental facts of morphology and classification, but the more prominent philosophical views as well. Each candidate must present an acceptable thesis embodying original research, with an adequate discussion of the bearings of the facts discovered, and the views of previous writers on the same subject.

FELLOWSHIPS.

The Olmstead and Miner Fellowships in Natural History. — In accordance with the spirit of the gift of the late Charles Hyde Olmstead, of Hartford, Conn., the trustees have established two fellowships in Natural History, to be known respectively as the Olmstead and Miner Fellowships. The income of these fellowships, amounting to two hundred and fifty dollars annually each, is awarded by the Trustees to graduate students in Natural History upon recommendation of the graduate Faculty. The conditions of the fellowships are as follows: —

(1) The application must be made in writing before May 1, addressed to the President of the College. It must contain evidence of a liberal education, of an ability to profit by the work to be done, and testimonials of good character from instructors or others. Any original article, either written or printed, is an aid in ascertaining the attainments of the candidate.

(2) The holder of the fellowship will be expected to devote himself to the prosecution of some special subject under the direction of the professors in charge of the departments of Natural History. He may be called upon for minor services, such as conducting examinations, but he shall not be called upon to teach. He may, however, at his own option, and with the approval of the President, give instruction by lectures or otherwise to persons connected with the College, but not elsewhere.

(3) The payments will be made half in January and half in June; but, in case of resignation or removal from the fellowship, payment will be made only for the time it is actually held. The holder of the fellowship is not exempt from the payment of tuition.

(4) Residence is a condition of holding either of these fellowships.

The holder of a fellowship may be eligible to a single re-election, but incumbency constitutes no claim to reappointment.

TUITION.

The tuition fee for the whole course for the degrees of Master of Arts, Civil Engineer, and Electrical Engineer is *one hundred dollars*, of which *fifty dollars* is payable in advance.

The tuition fee for candidates for the degree of Doctor of Philosophy is *one hundred dollars* for each year spent at the College, of which *fifty dollars* is payable in advance each year.

The requirement of bonds stated on page 138 applies to all students of the College, graduate as well as undergraduate.

THE
JOHN CRERAR
LIBRARY

Ballou Hall.

Buildings and Equipment.

BUILDINGS.

The College buildings are fourteen in number: Ballou Hall, containing recitation-rooms and the physical laboratory; Barnum Museum, containing the natural history collections and the biological and geological laboratories and lecture-room; Goddard Chapel; Goddard Gymnasium; the Library; the Chemical Building, containing the chemical laboratories and lecture-room; three dormitories, — East Hall, West Hall, Dean Hall; the Commons Building, containing the commons dining-hall, the post-office, and rooms for students; and Metcalf Hall, for women students. The Bromfield-Pearson School building is available for the technical courses of the College. Two buildings, Miner Hall and Paige Hall, are devoted to the use of the Divinity School.

LIBRARY.

The Library contains about thirty-eight thousand bound volumes and over seventeen thousand pamphlets. It includes, in a separate room, the private library (numbering fourteen hundred and forty volumes) of the late Rev. William H. Ryder, D.D., of Chicago. It has a very full collection of English works relating to music, and in addition to its general collection in American history, the valuable collection in this field of the late Richard Frothingham. There is also the Metcalf Musical Library of thirteen hundred volumes, which is accessible to students of the College. The College regularly receives over two hundred periodicals. In the Library building a reading-room, maintained by the students, supplies the daily and weekly papers. The average annual increase by donation and purchase, for the last five years, has been about twelve hundred volumes. The Library is open to all members of the College every day in the week, except Sunday, from 8.45 A. M. to 12.45 P. M., and from 2 to 5 P. M.

In addition to the general library, there is in Miner Hall the collection of the Universalist Historical Society (thirty-five hundred volumes and several thousand pamphlets), to which, on application, students have free access; and in the Barnum Museum the department library of Natural History, numbering over one thousand volumes and twenty-eight hundred pamphlets. There are altogether over forty thousand bound volumes available for use.

BARNUM MUSEUM.

The Barnum Museum of Natural History was built in 1883–84 by the late Phineas T. Barnum, who also gave the College a fund for its maintenance, and later, by bequest, gave funds for the erection of two wings to the central building. One of these wings has been erected. In addition to laboratory rooms, it affords space for the display of the mineralogical and geological collections.

The College is also indebted to Mr. Barnum for the larger portion of its zoölogical collection. This serves to illustrate all groups of the animal kingdom and is especially rich in skeletons and mounted skins of mammals. Besides the more common forms, it contains many rare and interesting species, as Hatteria, Polypterus, Ceratodus, Protopterus, Cestracion, Amphioxus, Peripatus, and Pentacrinus, the whole being well adapted for the purposes of instruction. During recent years a large series of skeletons of the lower vertebrates, as well as numbers of the Naples Station Invertebrates, have been placed on exhibition.

The botanical collection consists of an herbarium containing a representation of the flora of New England, besides many specimens from Europe and the Southern and Western States. The geological collection contains representatives of the various types of rocks, as well as of fossils from all formations. Especially interesting are the nearly perfect skeletons of Ichthyosaurus and Plesiosaurus. The mineralogical collection, which has been assembled with great care, contains most of the species in very fine examples. Among those at present displayed are collections illustrating the chemical and physical properties of minerals.

The laboratories and lecture-rooms of the department of Geology are in the main Museum building. The geological laboratory is provided with petrological microscopes, instruments for making rock sections, and other instruments; the mineralogical laboratory possesses the apparatus necessary for the determination of minerals, the analysis of ores, and assay work; the biological laboratories are in the newly erected wing. The laboratory for elementary work is equipped with all necessary facilities, while the laboratories (two in number) for advanced and research work have all the appliances and reagents needed for investigation in the lines of anatomy, histology, and embryology.

The department library of Natural History, recently established in the Barnum Museum, contains those publications which bear directly upon the work of the department. It already embraces over one thousand volumes and over twenty-eight hundred pamphlets. Its future increase is in part provided for by the publications received in exchange for the Tufts College Studies. Most of the series of periodicals are complete since 1870.

GODDARD GYMNASIUM.

The Goddard Gymnasium is the gift of Mrs. Mary T. Goddard, and comprises, besides the main room for individual and class exercise, dressing-rooms, tub-baths, shower-baths, and lockers. The floor space unoccupied by apparatus is sufficient to accommodate a class of sixty men. The apparatus embraces that usually found in a well-equipped gymnasium, including fourteen Sargent developing-machines, a large wrestling-mat, and facilities for basket-ball. A running-track, one thirty-second of a mile in length, extends around the room. A full set of anthropometric instruments admits the accurate measurement of each student as preliminary to the assignment of suitable exercise.

PHYSICAL LABORATORY.

The Physical Laboratory contains apparatus sufficient for illustrating all the general principles of Physics. The equipment includes a dividing-engine, chronograph, cathetometer, sextant, microscope, saccharimeter, polariscope, spectroscope, spectrometer, optical bench, Rowland's gratings, and charts of the solar spectrum; also apparatus for projection with sunlight, lime, and electric lights. In the field of electricity the equipment is especially good, including standards of resistance, of capacity, and of electro-motive force, besides a variety of instruments for accurate measurement.

ELECTRICAL LABORATORY.

The Electrical Laboratory is supplied with the apparatus needed for testing and experimental purposes; among which may be mentioned ammeters, voltmeters, Wheatstone bridges, reflecting galvanometers, an electrometer, Sir William Thomson's standard balances, condensers, a large induction coil, and, in process of construction, an electro-dynamometer with coils a meter in diameter.

The dynamo-room contains a B. F. Sturtevant high-speed automatic engine of about twenty-five horse power, belted to a line of shafting, the driven pulley being connected to the shafting through an Emerson power-scale reading to forty horse power. From this shafting are belted an American and a Ball arc-light dynamo, a 12 kilo-watt polyphase generator, a 15 kilo-watt 110 volt generator, and a pair of 110 volt 1,500 watt machines for the Library three-wire installation. Connected with the engine by a clutch is a 15 kilo-watt Mordey alternator. There are also a pair of railway motors and several small motors for testing purposes and for power. Steam power is furnished by a Whittier boiler.

Belonging to the dynamo-room are over twenty arc-lamps and a supply of electrical testing instruments. Adjacent is the battery-room, the main battery consisting of sixty of the large cells of the American Accumulator Company. These cells are in constant use for experimental and motor work, and for lighting.

CHEMICAL BUILDING.

The building of the department of Chemistry contains laboratories for General Inorganic, Organic, Analytical, and Metallurgical Chemistry, a large lecture-room, library, and weighing-room, and the private laboratories of the professors in charge. The rooms are provided with all the modern laboratory conveniences and are well equipped with apparatus and chemicals.

BROMFIELD-PEARSON BUILDING.

The Bromfield-Pearson building is provided with shops and drafting-rooms equipped for the instruction of classes in the Engineering courses in Carpentry, Pattern-making, Forging, Foundry and Machine Work, and Drawing. The equipment includes a forge shop and foundry, provided with the necessary forges and tools for a class of eighteen ; pattern and machine shops, also equipped for classes of eighteen, each member being provided with a lathe, bench, and necessary tools. The drafting-rooms are on the northern side and are separated from the noise and vibration of the shops. Abundant and uniform light is provided.

THE HALLS.

The Halls for the accommodation of students in the College of Letters are five in number. East, West, and Dean Halls, and the Commons Building, for men, are arranged with spacious and convenient rooms, in suites, are warmed by steam, lighted by gas, and have good modern plumbing. Metcalf Hall, for women students, is a gift to the College by Mr. Albert Metcalf, of Newton. It is built of buff brick and gray limestone, of simple and dignified architecture, and is equipped with every convenience. The first floor contains the rooms of the matron, a reception-room, cloak-room, reading-room, and dining-room. The second and third floors have pleasant rooms for students, with ample bath and toilet conveniences on each floor. In the wing is the kitchen on the first floor, and servants' rooms on the second. Every safeguard for health and against fire is provided.

General Information.

RELIGIOUS OBSERVANCES.

Goddard Chapel, erected in 1882–83, is the gift of Mrs. Mary T. Goddard as a memorial of her husband, the late Thomas A. Goddard. Morning prayers are held daily, at which attendance is required. The care of the pulpit on Sundays devolves upon the President of the College; but variety and interest are given to the preaching services by frequent exchanges with neighboring clergymen. Attendance upon Sunday services is required; but permission is freely given to those who desire to attend elsewhere.

The RUSSELL LECTURE, established in accordance with a bequest of the late James Russell, of Arlington, is delivered before the Trustees, Faculty, and students, on the first Sunday of the college year, by either a clergyman or a layman, on a subject prescribed by the testator.

TUFTS COLLEGE STUDIES.

This publication has been established as a means of presenting to the world the results of original work done in the different departments of the College. The numbers, which will be issued as material is ready, will be distributed to educational institutions and learned societies. The College desires to establish regular exchanges of these Studies with all publishing institutions at home and abroad. Correspondence regarding such exchanges should be addressed to the Librarian of Tufts College.

Five numbers have been issued, containing the following papers: "The Anterior Cranial Nerves of Pipa," by G. A. Arnold; "Ectodermic Origin of the Cartilages of the Head," by Julia B. Platt; "The Classification of the Arthropoda," by J. S. Kingsley; "Development of the Lungs of Spiders," by O. L. Simmons; "Development of the Wing in Sterna Wilsoni," by V. L. Leighton; "The Morphology and Classification of the Pauropoda, with notes on the Morphology of the Diplopoda," by Frederick C. Kenyon; and "The Chondrocranium in the Ichthyopsida," by Guy M. Winslow.

The editorial board of TUFTS COLLEGE STUDIES for the current year is made up of the President of the College, and Professors Knight, Dolbear, and Kingsley.

REGISTRATION.

Every student in the College of Letters is required to file with the Registrar or his assistant a plan of study for the first term on the morning of the opening day of that term; and a similar plan for the second term on the morning of the last day of the first term.

This registration for students not in the Engineering Department is made in duplicate on blanks furnished for the purpose, one copy to be kept on file by the Registrar, the other to be used, in the case of Freshmen, by the Committee on Freshman Plans of Study, and in the case of special students and members of the upper classes, by major instructors. Each student also furnishes such data as shall be required by the Registrar for class lists. Registration is made by classes as appears below, classification being as shown in the official list last printed.

Seniors and *all* specials, 8.45 to 9.30 A. M.
Juniors, 9.30 to 10.15 A. M.
Sophomores, 10.15 to 11.00 A. M.
Freshmen, 11.00 A. M. to 12 M.

The Committee on Freshman Plans of Study will be in session for consultation from three to five P.M., on the second day of the fall examinations, and during the same hours on the afternoon preceding the last day of the first term.

Each student in the Engineering Department is required to file with the Secretary on days as above described for other students a plan of study, together with such data for class lists as shall be required. The following program for registration is followed, classification being based upon the last printed list as explained above.

Seniors, 8.45 to 9.15 A. M.
Juniors, 9.15 to 9.45 A. M.
Sophomores, 9.45 to 10.15 A. M.
Freshmen, 10.15 to 10.45 A. M.

A registration fee of two dollars is imposed upon students in all departments who fail to register in person during the time prescribed for their respective classes, or who fail to file with the proper official their plans of study and other required data before one o'clock P.M. on the day of registration. This fee must be paid to the College Treasurer or his representative before registration can be permitted. Students are not recognized as members of classes until they have met all requirements of registration.

During the hours set apart for registration instructors may be seen for consultation and for approval of plans of study, in rooms to be announced by posted bulletins.

PROMOTIONS.— Students in the courses leading to the degrees of A.B. or Ph.B. are registered as Sophomores when they have twenty-six term hours to their credit; as Juniors when credited with fifty-eight term hours; and as Seniors when credited with ninety term hours.

Students in the Engineering Courses fail of promotion if they have deficiencies amounting to six term hours in the prescribed work of the year. The Engineering Committee will be in session from nine to twelve o'clock in the forenoon of the second day of the fall examinations to consider the programs of such students in Engineering as have six or more term hours of conditions, or have failed to fulfil requirements imposed at the close of the previous year.

ADMISSION FROM OTHER COLLEGES. — Students entering

Tufts College after pursuing study in any other college of equal rank are credited with the number of hours' work actually done towards the requirements of Tufts College, as certified by the proper authorities of the college from which the student comes. Such students must present satisfactory certificates showing the amount and character of work already accomplished, in order to obtain credit on the course of this College.

SPECIAL STUDENTS.

Students wishing to pursue a special course of study, who are not candidates for a degree, are subject to the following regulations: —

1. Every special student shall choose a major department, and shall make up a plan of study under the direction and subject to the approval of the major instructor.
2. The student shall satisfy the instructor in each subject included in the approved plan of study that he is able to pursue the work.
3. Every special student having less than fifteen program hours a week will be required to obtain seventy per cent in each subject; but those whose program hours number fifteen or more will be treated in the same manner as regular students.
4. A special student, on leaving College, shall be entitled to a certificate giving the per cent attained in each course pursued, and signed by the President and the Registrar.
5. Special students in Electrical Engineering are required to pass examinations in General Physics, Trigonometry, and Elementary Calculus.

TERMS AND VACATIONS.

The college year begins on the third Thursday in September, and ends at Commencement, the third Wednesday in June. The year is divided into two terms of eighteen weeks each. There are no college exercises during a recess of three days at Thanksgiving, two weeks at Christmas, and one week beginning on the Saturday before the first Thursday in April.

EXPENSES.

The charge for instruction is *one hundred dollars* a year, except in the Engineering Courses, the tuition for which is *one hundred and twenty dollars* a year.

Students in the chemical laboratories are charged for breakage and *four dollars* a term for materials used. A fee of *two dollars* a term, payable in advance, is required of all students taking laboratory work in Biology. Students, except those in the engineering courses, who take shopwork are charged extra.

The college halls will accommodate two hundred and fifty men. Half-room rent, including heat, ranges from sixteen to eighty-five dollars. Metcalf Hall will accommodate twenty-four women. Students furnish their own rooms. A charge of *ten dollars* a year for the care of rooms is made to all persons rooming in any of the college buildings, except Paige Hall. Any damage done by students to college property is charged in the term bills.

Rooms in the college halls will be open for the occupancy of students on and after the Wednesday of the week preceding the opening of the college year.

Non-resident students in all departments except the Medical School are subject to a fixed annual charge of ten dollars.

Every student who enters the College of Letters is required to deposit with the Bursar of the College either a bond with two satisfactory sureties for the sum of *two hundred dollars*, or the sum of *one hundred dollars* in cash, which sum, with interest at the rate of four per cent yearly, will be returned when the student leaves the College, his term bills first being paid in full. No officer or student of the College will be accepted as a bondsman.

The charges for each year are contained in two bills, of which the first is made at the middle of the year, and is payable on the first day of March; the second is made immediately after Commencement, and is payable on the first day of the following college year; but the second bill of the Senior year must be settled by the Saturday before Commencement, or graduation will not be permitted.

All college charges are payable to the Bursar, and all arrangements with regard to rooms are to be made with him. The Bursar's office is in the Library Building.

Students board in commons at $3.75 per week; in private families at $3.50 to $5.00 for table board. Other expenses vary with the economy of each student.

The following estimates represent the fixed annual expenses:—

Tuition	$100.00	$100.00
Physical culture, including gymnasium and grounds	10.00	10.00
Reading-room	1.00	1.00
Half-room rent	16.00	85.00
Care of rooms	10.00	10.00
Board, $3.50 to $5.00 a week (36 weeks)	126.00	180.00
Total	$263.00	$386.00

SCHOLARSHIPS.

Awards of scholarships are made by the Board of Trustees on the recommendation of the Faculty. The obtaining of a scholarship for one year does not constitute any title to a second nomination.

Applications for scholarships must be filed with the Bursar, on blanks furnished for the purpose, on or before the tenth day of October; and, if the applicant be a minor, must be sanctioned by his parent or guardian. Scholarships will be granted, in general, only to students actually in need of such aid. No one need apply who has not made satisfactory progress, or who has come under any grave censure in the course of the year.

Scholarships are available for those students only whose term bills are fully paid within ten days after the opening of each college term, or after such bills shall have become due. The bills of any student whose connection with the College ceases are due at that time. The term bills of members of the graduating class are payable on the Saturday preceding Commencement Day.

No scholarship is available to any student who is not a resident of a college dormitory, unless excused in writing from such residence by the authority of the executive committee of the Board of Trustees.

The following scholarships, the yearly income of which is one hundred dollars each, are awarded annually by the Trustees, but except in special cases, when the donor has otherwise stipulated, the Trustees will award scholarships in the sum of fifty dollars each.

THREE STATE SCHOLARSHIPS.— Established in accordance with a resolve of the Commonwealth.

FIVE HOWLAND SCHOLARSHIPS.— Established from the income of the bequest of the late Edwin Howland, of South Africa.

FIVE WALKER MATHEMATICAL SCHOLARSHIPS.— Established in honor of the late William J. Walker, M.D., of Newport, R. I., and payable from the income of the Walker Fund.

TWO MOSES DAY SCHOLARSHIPS.— Founded by the late Moses Day, of Roxbury.

THE A. A. MINER SCHOLARSHIP.— Founded by the late A. A. Miner, D.D., of Boston.

THE REBECCA T. ROBINSON SCHOLARSHIP.— Founded by the late Charles Robinson, LL.D., of Newton.

THE WILLIAM OSCAR CORNELL SCHOLARSHIP. — Founded by William Oscar Cornell, of Providence, R. I.

THE ARA CUSHMAN SCHOLARSHIP.— Founded by Ara Cushman, of Auburn, Me.

THE LAURA A. SCOTT SCHOLARSHIP.— Founded by Mrs. Laura A. Scott, of Ridgefield, Conn.

THE STOW SCHOLARSHIP.— Founded by Mrs. Eugenia D. Stow, of Meriden, Conn.

THE NORCROSS SCHOLARSHIP.— Founded by James A. and Mrs. Mary E. Norcross, of Worcester.

THE ANDERSON SCHOLARSHIP.— Founded by John M. Anderson, of Salem, in the name of John M. and Rebecca Anderson.

THE TRAVELLI SCHOLARSHIP.— Founded by Mrs. Emily R. Travelli, of Newton.

THE WHITTIER SCHOLARSHIP.— Founded by Charles Whittier, of Roxbury, in the name of Charles and Eliza Isabel Whittier.

THE TALBOT SCHOLARSHIP. — Founded by Newton Talbot, of Boston.

THE SIMONS MEMORIAL SCHOLARSHIP.— Founded by Mrs. Mary A. Simons, of Manchester, N. H., in memory of Hiram H. Augustus and Frank Simons.

THE AMASA AND HANNAH L. WHITING SCHOLARSHIP.— Founded by Mrs. Hannah L. Whiting, of Hingham.

THE MARTHA GOLDTHWAITE MEMORIAL SCHOLARSHIP.— Founded by Willard Goldthwaite, of Salem.

THE ANDREW J. CLARK MEMORIAL SCHOLARSHIP.— Founded by Mrs. Abbie B. Clark, of Orange.

THE SARAH E. SAYLES MEMORIAL SCHOLARSHIP.— Founded by Albert W. Sayles, of Lowell.

THE COUSENS SCHOLARSHIP.— Founded by John E. Cousens, of Brookline, in the name of John E. and Sarah C. Cousens.

THE BENJAMIN F. SPINNEY SCHOLARSHIP.— Founded by Benjamin F. Spinney, of Lynn.

THE HENRY F. BARROWS SCHOLARSHIP.— Founded by Henry F. Barrows, of North Attleboro.

THE ELLERY E. PECK MEMORIAL SCHOLARSHIP.— Founded by Henry Rollins, of Bangor, Me. The income of this scholarship is not at present available.

THE J. H. MORLEY MEMORIAL SCHOLARSHIP.— Founded by Herbert Morley Small, of Baldwinville.

THE EDWIN H. CHAPIN MEMORIAL SCHOLARSHIP.— Founded by friends of the late E. H. Chapin, D.D., in New York City.

THE THOMAS A. GODDARD MEMORIAL SCHOLARSHIP.— Founded by Mrs. Mary T. Goddard, of Newton.

THE HOSEA BALLOU, 2D, MEMORIAL SCHOLARSHIP.— Founded by Mrs. Mary T. Goddard, of Newton.

THE HENRY E. COBB SCHOLARSHIP.— Founded by the late Henry E. Cobb, of Boston.

THE MARY ANN WARD SCHOLARSHIP.— Founded by Sylvester L. Ward, of Boston.

THE MARIA P. WINN SCHOLARSHIP. — Established from a bequest of the late Mrs. Maria P. Winn, of Woburn.

THE JOSEPH D. PEIRCE MEMORIAL SCHOLARSHIP.— Founded by the children and other relatives of the late J. D. Peirce, D.D., of Attleboro.

THE SCHOLARSHIP OF THE CLASS OF 1857.— Founded by the late Heman Allen Dearborn, for the benefit of women students. This scholarship is not available the present year.

TWO JOHN AND LUCY H. STOWE SCHOLARSHIPS.— Two scholarships of one hundred dollars each for women students, founded by Mrs. Lucy H. Stowe, of Lawrence.

TWO SIMMONS SCHOLARSHIPS.— Founded by the will of Robert F. Simmons, of Attleboro, in the names of Mary F. and Robert F. Simmons.

THE JOSHUA S. AND HARRIET N. WHITE SCHOLARSHIP. — Founded by the late Joshua S. White, of Pawtucket, R. I.

THE JOHN B. PERKINS SCHOLARSHIP.— Founded by Ann Maria Perkins, of Medford.

THE BARNARD SCHOLARSHIP.— Founded by Caroline M. Barnard, of Everett.

THE BARTLETT SCHOLARSHIP.— Founded by Mrs. Nancy Bartlett, of Milford.

THE B. H. DAVIS SCHOLARSHIP.— Founded by the Rev. B. H. Davis, of Weymouth, for the benefit of students of the College of Letters who are preparing to enter the Christian ministry.

THE LATIMER W. BALLOU SCHOLARSHIP.— Founded by Latimer W. Ballou, of Woonsocket, R. I.

The following scholarships of fifty dollars each are awarded annually: —

THE A. A. MINER SCHOLARSHIP.— Founded by A. A. Miner, D.D. of Boston.

THE PERKINS SCHOLARSHIP.— Founded by James D. Perkins, of Brooklyn, N. Y.

THE MOSES DAY SCHOLARSHIP.— Founded by the late Moses, Day, of Roxbury.

THE JOHN AND LUCY H. STOWE SCHOLARSHIP.— Founded by Mrs. Lucy H. Stowe, of Lawrence, for the benefit of women students.

THE JOSEPH H. WALKER SCHOLARSHIP.— Founded by Joseph H. Walker, of Worcester.

The following scholarships are awarded under special conditions: —

THE GREENWOOD PRIZE SCHOLARSHIP IN ORATORY.— Founded by the late Mrs. Eliza M. Greenwood, of Malden, and given to such student as shall have made, as the result of faithful work, together with at least a fair degree of attainment, the greatest improvement in Oratory.

THE WENDELL PHILLIPS MEMORIAL SCHOLARSHIP. — Founded to perpetuate the name, fame, and influence of Wendell Phillips. This scholarship is to be awarded to a student who has completed the Freshman and Sophomore years of his course, and he is to have the benefit of it during the remainder of his course. The beneficiary must be of sound body, high character, and ability in declamation and debate, and must comply with certain special conditions, including participation in a competitive debate of the applicants at the end of the Sophomore year. The specific conditions governing the award of this scholarship may be obtained by those intending to apply therefor of the Secretary of the Faculty, to whom application should be made early in the Sophomore year. The income of this scholarship is at present seventy dollars.

Loan Fund for Women.— The Woman's Universalist Missionary Society of Massachusetts maintains a fund which is loaned to deserving women students, in sums of one hundred dollars, at four per cent. This fund now amounts to about three thousand dollars.

Appointments.— The pay of a monitor is *fifteen dollars* a year; that of the bell-ringer and the organist, *one hundred and fifty dollars* each.

PRIZES.

Goddard Prizes.— In the second term of the academical year three prizes of *fifteen dollars* each are assigned from the Goddard Prize Fund, as follows: —

A prize for the best examination in Plato's Symposium, or the Agamemnon of Æschylus, including an account of the author and his works.

A prize for the best Latin prose translation, by a member of the class pursuing Latin 6, of the fifth, sixth, and seventh sections of Chapter LV. in Liddell's History of Rome.

A prize for the best examination in the Mathematics of the first year.

The translations must be left at the President's office by the first day of May, in sealed envelopes, accompanied by sealed letters containing the authors' names.

Rhetorical Prizes.— Six prizes are awarded, as follows: —

Two prizes, of *twenty* and *ten dollars* respectively, to the best readers among students who have taken six term hours in Oratory.

Two prizes, of *twenty* and *ten dollars* respectively, to students who have taken four term hours in Oratory, for the best exhibition of improvement and skill in elocution.

Two prizes, of *twenty* and *ten dollars* respectively, on the same conditions, to students who have taken two term hours in Oratory.

The rhetorical prizes are awarded by a committee, chosen by the Faculty, who judge the work presented by the competitors upon the public day appointed for that purpose. In order to enter the public competition, candidates, as well as their selections, must be approved by the Professor of Oratory.

Entrance Examination Prizes. — Two prizes, of *thirty* and *twenty dollars* respectively, are awarded for the best entrance examinations. No one will be considered a candidate for such prize unless he has passed at the regular examinations in all the subjects required for admission to the College, and has been admitted without conditions. These prizes are payable at the end of the first term in College.

The foregoing prizes are not awarded unless, in the opinion of the respective judges, there is sufficient merit in the several contests to warrant their distribution.

HONORS AND DEGREES.

Final Honors will be conferred at Commencement upon any member of the graduating class in the Courses in Liberal Arts who shall have attained Grade A (at least eighty-seven per cent) in approved subjects aggregating not less than eighteen term hours in a major department, and an average Grade B (at least seventy-five per cent) in the collateral subjects. Subjects marked in the Catalogue with a star (*) will not count for Honors. Those marked with a double star (**) will only be counted for Honors when special requirements, to be defined by the instructor, have been complied with.

Final Honors will be conferred at Commencement upon any member of the graduating class in the Engineering Courses who shall have complied with the following conditions: —

In the two years immediately preceding graduation,—

1. He must have attained Grade A (over eighty-seven per cent) in the equivalent of six hours a week for a year in the subject in which he desires honors.

2. He must also have attained Grade A in extra work in this or a cognate subject equivalent to three hours a week for a year.

3. He must have attained Grade B (over seventy-five per cent) in the average of all his studies during this period.

The following subject in the Engineering Courses is open for honors,— Electricity.

Honorable Mention will be made in the Commencement program and in the Annual Catalogue of a student who has attained, during the two years immediately preceding graduation, an average of at least eighty per cent in not less than twelve term hours of approved work in one department. Subjects marked in the Catalogue with a star (*) will not be counted for Honorable Mention. Subjects marked with a double star (**) will only be counted for Honorable Mention when special requirements, to be defined by the instructor, have been complied with.

THE DEGREE OF BACHELOR OF ARTS will be conferred at Commencement by the Trustees, on recommendation of the Faculty, upon students who shall have complied in a satisfactory manner with the conditions stated on pages 48 to 50.

THE DEGREE OF BACHELOR OF PHILOSOPHY will be conferred upon students who shall have complied with the conditions stated on pages 48 to 50, for the attainment of that degree.

THE DEGREE OF BACHELOR OF SCIENCE will be conferred upon students who shall have completed the General Course in Science, the Special Course, in Biology or in Chemistry, or the Medical Preparatory Course, complying in a satisfactory manner with the conditions stated on pages 85 to 92.

THE DEGREE OF BACHELOR OF SCIENCE in Civil Engineering, in Electrical Engineering, or in Mechanical Engineering will be conferred upon students who shall have completed the required course, as defined on pages 95 to 121.

Students of the courses in Liberal Arts may so arrange their elective work as to make it possible to obtain the degree of Bachelor of Science in Civil Engineering, Electrical Engineering, or Mechanical Engineering, after a graduate course of one year in the Engineering Department.

For the advanced degrees of MASTER OF ARTS, DOCTOR OF PHILOSOPHY, CIVIL ENGINEER, ELECTRICAL ENGINEER, and MECHANICAL ENGINEER, see Graduate Department, page 122.

THE DIVINITY SCHOOL.

Faculty of the Divinity School.

ELMER H. CAPEN, D.D., PRESIDENT.
In charge of Political Economy.

CHARLES H. LEONARD, D.D., DEAN.
Goddard Professor of Homiletics and Pastoral Theology.

THOMAS J. SAWYER, D.D., LL.D.,
Packard Professor of Christian Theology, Emeritus.

WILLIAM G. TOUSEY, A. M., B.D.
Professor of Ethics and Philosophy of Theism.

GEORGE T. KNIGHT, D.D., SECRETARY.
Professor of Church History, also in charge of Systematic Theology.

GEORGE M. HARMON, A.M., B.D.
Professor of Biblical Theology.

DAVID L. MAULSBY, A.M.
Professor of Oratory.

WARREN S. WOODBRIDGE, A.M., B.D.
Woodbridge Professor of Applied Christianity.

NON-RESIDENT LECTURERS.

EDWIN C. BOLLES, D.D.
Lecturer on The Worth of Avocation to the Minister.

HENRY W. RUGG, D.D.
Lecturer on Christian Missions.

WILLIAM H. DEARBORN, B.D.
Lecturer on The Preacher's Intellectual Resources.

FRANK O. HALL, B.D.
Lecturer on The Work of the Ministry.

For students of the Divinity School, see Register of Students at end of Catalogue.

For the Calendar, see pages 4 and 5.

THE
JOHN CRERAR
LIBRARY

MINER HALL.

The Divinity School.

The Divinity School is one of the departments of Tufts College, the general advantages of which are enjoyed by all its members in common. The College Library, the Museum of Natural History, the Gymnasium, are accessible to all. Courses of study and lectures in the College of Letters are open to the Divinity Students, subject, however, to the discretion of the Faculty. The graduates of the Divinity School in common with the graduates of the other departments are enrolled in the Quinquennial Catalogue of the College, and are eligible to membership in the Alumni Association of Tufts College.

REQUIREMENTS FOR ADMISSION.

Candidates unknown to the Faculty must bring satisfactory testimonials as to character. It is expected that they will present themselves on the day preceding the first day of the academic year.

Bachelors of Arts are admitted to a three-years course, without examination, to be candidates for the degree of Bachelor of Divinity. Candidates for this degree who are not Bachelors of Arts are required to take a four-years course, and to sustain a satisfactory examination on average passages from the Latin of Cæsar, Cicero, and Virgil; and on average passages from the Greek of Xenophon, Homer, and the Gospels. Ability to read simple prose in French or German, and to write in French or German a paragraph upon an assigned subject, is accepted as an alternative for the requirement in Latin. They are also required to pass an examination in Greek, Roman, English, and American History; in Rhetoric; in English Literature and in English Grammar and Composition, in which the requirement is as follows: —

English Grammar and Composition. — Spelling, punctuation, structure of sentences, correct use of words, clearness of expression.

The examination will consist (1) in criticising specimens of incorrect English; (2) in writing a short composition on a subject assigned. Subjects for composition will be drawn from the following standard works in English literature. All the books named for the given year are to be read, and, from two or three of them, subjects will be assigned at the time of examination.

For 1899. — Dryden's Palamon and Arcite; Pope's Iliad, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in *The Spectator;* Goldsmith's The Vicar of Wakefield; Coleridge's The Ancient Mariner; De Quincey's The Flight of a Tartar Tribe; Cooper's The Last of the Mohicans; Lowell's The Vision of Sir Launfal; Hawthorne's The House of the Seven Gables; Shakespeare's Macbeth; Milton's Paradise Lost, Books I and II; Burke's Speech on Conciliation with America; Carlyle's Essay on Burns.

For 1900. — Dryden's Palamon and Arcite; Pope's Iliad, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in *The Spectator;* Goldsmith's Vicar of Wakefield; Scott's Ivanhoe; De Quincey's Flight of a Tartar Tribe; Cooper's Last of the Mohicans; Tennyson's Princess; Lowell's Vision of Sir Launfal; Shakespeare's Macbeth; Milton's Paradise Lost, Books I and II; Burke's Speech on Conciliation with America; Macaulay's Essays on Addison and Milton.

For 1901. — George Eliot's Silas Marner; Pope's Iliad, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in *The Spectator;* Goldsmith's Vicar of Wakefield; Scott's Ivanhoe; Shakespeare's Merchant of Venice; Cooper's Last of the Mohicans; Tennyson's Princess; Coleridge's Rime of the Ancient Mariner; Shakespeare's Macbeth; Milton's L'Allegro, Il Penseroso, Comus and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essays on Addison and Milton.

Applicants from other theological institutions whose course of study is the equivalent of that pursued in this institution will be received *ad eundem.*

Course of Study.

SUB-JUNIOR CLASS.

Logic. — The First Principles of Logic; Concepts and Propositions; Immediate Inference; Deduction; Induction; Analogy; Hypothesis. *Four hours a week (first half-year).*
PROFESSOR TOUSEY.

Psychology. — Elementary; The Relations between Mind and Body; The Principles of Modern Psychology; James's Smaller Psychology as a text-book; Lectures; Experiments. *Three hours a week (second half-year).* DR. CUSHMAN.

English. — One or more courses to be selected, under direction, from those offered in the College of Letters (see pages 52–54). *Three hours a week.*

Old Testament. — General Introduction. *Three hours a week.*
PROFESSOR WOODBRIDGE.

Oratory. — Class Exercises in Vocalization and Gesture. The Principles of Oratory exemplified in practice. *One hour a week.*
PROFESSOR MAULSBY.

A Science or Language Study. — (To be selected under direction of the Faculty.) *Three hours a week.*

JUNIOR CLASS.

Logic. — Fallacies; Analysis of Arguments; Ethics of Belief. *Two hours a week (first half-year).* PROFESSOR TOUSEY.

Old Testament. — Special studies in Old Testament Literature. *Three hours a week.* PROFESSOR WOODBRIDGE.

New Testament. — Criticism of the Synoptic Gospels, Textual and Historical; Hermeneutics; Life and Teachings of Jesus from the Greek of the Synoptic Gospels, with studies from the life of his times. *Four hours a week.* PROFESSOR HARMON.

Church History. — History of the Church, of the Sects, and of Doctrines, from the Apostles to the Present Time; History of Doubt. *Four hours a week.*
PROFESSOR WOODBRIDGE and PROFESSOR KNIGHT.

Homiletics. — History of Preaching; The Idea and Structure of the Sermon; Homiletic Analysis. *Three hours a week* (*second half-year*). PROFESSOR LEONARD.

Oratory. — Practice in the reading of Scripture, Hymns, and in formal and extemporaneous preaching. *One hour a week.* PROFESSOR MAULSBY.

MIDDLE CLASS.

New Testament. — Criticism of Acts and the Epistles; History and Doctrines of the Apostolic Church, from the Greek of Acts and the Epistles, with studies from the life of the time. *Four hours a week.* PROFESSOR HARMON.

Ethics. — The Moral Nature; Ethical Theory; Practical Ethics; Ethics and Theism. *Three hours a week.* PROFESSOR TOUSEY.

Systematic Theology. — Theology; Anthropology; Soteriology; Eschatology; Critical Study of Modern Doctrines. *Four hours a week* (*first half-year*); *three hours a week* (*second half-year*). PROFESSOR KNIGHT.

Homiletics. — Study of Sermons of Eminent Preachers; Lectures; Sermon Writing and Preaching. *Three hours a week.* PROFESSOR LEONARD.

Applied Christianity. — The Relations of the Church to the Life of the Individual and to Social Problems. *Two hours a week.* PROFESSOR WOODBRIDGE.

SENIOR CLASS.

New Testament. — Criticism, Exegesis, and Doctrines of the Fourth Gospel. *Two hours a week.* PROFESSOR HARMON.

Comparative Theology. — The Religions of Ancient Egypt and Chaldæa; Hinduism; Buddhism; Confucianism; Taouism; Parseeism; Mohammedanism. *Three hours a week* (*first half-year*). PROFESSOR KNIGHT.

Philosophy of Theism. — The Final Problem; Limits of the Intelligence; Theistic Arguments; Final Cause in Nature; Anti-Theistic Theories. *Three hours a week.* PROFESSOR TOUSEY.

Political Economy. — Lectures on the History of Finance; Methods and Functions of Banking; Taxation, including Principles of Civil Government. Text-book work, Lectures, and Independent Investigations dealing with the History of Economics, Theories of Production, Consumption, Distribution, etc.; Problems of Profits, Wages, and Labor. *Three hours a week* (*first half-year*). PRESIDENT CAPEN.

Homiletics. — Homiletic Analysis; Lectures on Preaching; Composition and Delivery of Sermons. *Three hours a week.*
PROFESSOR LEONARD.

Applied Christianity. — The Pastor's Personal Qualifications and Duties; Organized Work in the Parish; The Conduct of Public Worship; The Mode of Conducting the Special Services of the Church; Actual Work in Missions and Charities. *Four hours a week* (*second half-year*).
PROFESSOR WOODBRIDGE and PROFESSOR LEONARD.

Departments of Instruction.

PSYCHOLOGY.

The course in Psychology is elementary and includes three hours a week for a half-year. The first topic is the Physiological Structure of the Brain, and the Physiology of Special Senses. Then the psychological phenomena are studied. The method of the course is strictly to review, in a scientific way, the fundamental principles of modern psychology. The aim includes not only scientific instruction and practical self-culture, but also has reference to professional uses.

LOGIC.

The Sub-Juniors receive instruction in the usual topics of an academic course. Considerable time is given to logical analysis and the employment of the inductive method as respects both discovery and proof.

The Juniors are exercised more especially in the application of logical principles. A review of the fallacious tendencies of the mind is followed by an extended study of Fallacies, as exemplified in the practical reasoning of men. The course concludes with a brief study in the Ethics of Belief. Under this head the nature and conditions of belief are discussed, the general principles of evidence reviewed, and certain current misconceptions exposed; the aim being to enforce the duty of rationalizing our beliefs, and while pointing out the limitations of the reason, to develop confidence in its actual findings, and a proper fortitude of conviction.

ENGLISH.

The efficiency of the clergyman is so largely conditioned by literary ability that much emphasis is placed upon the study of English. Opportunity is given to the student to elect in the College of Letters, in the direction both of composition and English literature. Well-directed practice in English composition affords direct aid in the formation of literary style, while the influence of the study of the masterpieces of literature, though indirect, is no less powerful in developing a feeling for appropriate expression. Moreover, the great poets and prose writers abound in suggestion for the public speaker both in their thought and its expression. In consequence, divinity students are expected to take such of the offered subjects as are adapted to their individual needs and available time. Some are advised to continue this work even throughout their whole theological course.

OLD TESTAMENT.

This study has in view such acquaintance with the literature of the Old Testament as, under the guidance of approved texts, an intelligent reading of some of the historic and poetic books will give. For the present, in the absence of a special instructor in this department, work in the Old Testament is confided to Professor Woodbridge. Other teachers in the school, however, will deal with phases of this study according as the subject is related to their special work.

NEW TESTAMENT.

In the Sub-Junior year, the history of the Jewish people from the Conquest of Alexander till the opening of Jesus's ministry is pursued, to acquaint the class with the events involved, with the growth of the institutions, the rise of parties, the origin and character of the literature, and the changes in the social and religious sentiment of the Jewish people during this period, with the aim to secure as clear and complete an understanding as possible of the conditions under which Jesus began his ministry.

In the Junior year the sources of the text of the New Testament are considered, with the principles employed in determining the true text, the aim being to render the student intelligent as to the procedure in Textual Criticism, and the bearing this procedure has on the work of exegesis. The History of the Canon for the first two centuries, and the historical and literary criticism of the Gospels, are next treated, to secure on the part of the student an understanding of the principal problems involved and the grounds of their discussion, the habit of sober and sound criticism, and a knowledge of the nature and contents of the Gospel writings.

In dealing with the Life of Jesus, notes on methods of correct interpretation are given the class, and their application is required in its exegetical work. The significant points and phases in the life and ministry of Jesus are selected and considered, passages from the Greek of the Synoptic Gospels being employed, to obtain a knowledge of the mind of Jesus, his relations to the parties and people of his time, the methods he pursued in his ministry, the course of facts in his life, and the doctrines he taught. Incident to this study, the critical points in dispute are considered as they arise. Historical and archæological questions are examined in their natural connections.

In the Middle year the History and Doctrines of the Apostolic Church are studied, the Book of Acts being used as the basis. This writing is first examined as an historical authority; passages from it in Greek are chosen, giving the significant stages in the external growth of the church and in its internal development; and these are studied with the aim to trace the first realization of the life of Jesus in the world. The Epistles of St. Paul are critically examined in the order of their origin in his ministry. The introduction to Hebrews and to the Catholic Epistles concludes the year's work.

As a part of this study the Theology of the New Testament is taken up. The attempt is made to discover the teaching of

Jesus contained in the Synoptic Gospels. With this teaching as the basis, the individual interpretations of the several Synoptists, of the author of the Fourth Gospel, of St. Paul in his earlier and later epistles, of the author of Hebrews, and the writers of the Catholic Epistles, are compared, each writing being first considered by itself. The aim is to obtain the common elements of teaching, and also what is distinctive in each writer and time.

In the Senior year the problem of the Fourth Gospel is considered ; the question of its use among the early Fathers, its internal character and its relation to the other New Testament writings, and to the thought of the Apostolic Church.

CHURCH HISTORY.

The purpose is to secure a knowledge of the leading facts and forces in the history of the Christian Church in its various branches. By such a knowledge, discovering the causes now at work in religion, the student obtains a grasp of present facts and problems such as he can obtain from no other source. Incidentally he becomes familiar with theological terms, and is furnished with the tools of theological work. In general, since in some degree the individual grows as the mass has grown, he finds in this study an education, an orderly development of his faculties.

The topics generally studied in regard to each period are : the External Growth of the Church, and its relations to the State ; the Internal Organization ; Intellectual Life and Doctrine ; Moral Life ; the Form and Substance of Worship. In the latter part of the year special study is made of the chief religious sects in the United States, and, lastly, of the History of Doubt.

The books used by the student are mostly contained in the Library of the College and in that of the Universalist Historical Society. They include Migne's edition of the Fathers ; translations of the anti-Nicene Fathers, and others ; the chief secondary authorities on general Church History, such as the works of Schaff, Fisher, Neander, Alzog ; and the special historical works of Fisher, Müller, Dorner, Briggs, Eddy, Ballou; and of the American Church History series.

In preparation for the regular class-room exercise, the student is provided with an analysis of each topic in order, and with references to original and secondary authorities. The student brings the result of his investigation to the class-room for criticism by his associates and instructor. At the completion of each topic the results are organized, and a written review held, the papers of which are returned, with comments as to truthfulness and mode of handling.

The students are also instructed in the methods of original investigation from primary authorities; and especially in the history of doctrines, they prepare several pieces of original work during the year.

COMPARATIVE THEOLOGY.

The primary aim of this study is a general knowledge and a catholic temper regarding the non-Christian religions. A secondary utility is found in that a candid study of the excellencies and defects of many religions renders the student more able to reject the false, and more inclined to rest in the true, and to give it his confidence and strength.

The sources of information to which the student is referred are the Records of the Past, Müller's edition of the Sacred Books of the East, Müller's own writings, the series entitled Non-Christian Religious Systems; and, in addition, the works of Rawlinson, Wilkinson, Sayce, Johnson, Barth, Legge, Oldenberg, Edkins, Haug, and others. Considerable use is also made of articles in the Encyclopædia Britannica.

The religions studied are those of ancient Egypt and Chaldæa; Hinduism, ancient and modern; the religions of Gautama Buddha, Confucius, Lao-tse, Zoroaster, and Mohammed.

The chief topics noted are: the Deity; the Forms and Meaning of Worship; the Theory of Ethics, and the Sanctions of Moral Life, including the Scheme of Salvation; the Actual Condition of the People representing each religion.

For the study of each topic in turn, the class is furnished with a syllabus and references. The results of their investigations are criticised and co-ordinated by students and instructor in the class-room.

The main purposes of this study are further secured by frequent inductive reviews, oral and written.

ETHICS.

Analytical and inductive study of the moral experience is followed by an attempt to develop a correct moral theory. Attention is given to the leading questions in ethical philosophy. Such doctrines as Sentimentalism, Hedonism, Utilitarianism, Intuitionalism, and Determinism are studied not merely in a critical spirit, but with a view to discover the special aspects of truth for which they stand.

During the second half of the year the class attends more especially to Practical Ethics, dealing with the leading contemporary problems, such as Education, Charities, State Aid, Temperance, Socialism, etc. Some attention is also given to Casuistry. The course concludes with a review of what is distinctively known as Christian Ethics. The instruction throughout is shaped to bring into clearness the fundamental principles of morality, and to show their importance in the conduct of the personal life and in the moral guidance of others.

PHILOSOPHY OF THEISM.

After some discussion of Agnosticism and other antecedent objections to Theism, the various modes of the theistic argument are reviewed, their grounds scrutinized, and their logical value carefully considered. In discussing the attributes of God, and his relation to the universe, Pantheism and Pessimism receive somewhat special notice. The general method here, as in Ethics, is to employ treatises available as texts, and to supplement them by means of annotations, lectures, and parallel readings, the aim being to lead the student to the sources of evidence, and to establish a vigilant and correct method of inquiry. Much importance is attached to the dialectic of the class-room, as securing a ready command of resources, and as a corrective of ill-defined notions and hasty inference. An effort is made to treat subjects in the light of contemporary criticism and the latest developments of science; and, by testing and chastening conclusions, to provide against fanaticism on the one hand, and frivolity of judgment on the other.

SYSTEMATIC THEOLOGY.

The purpose is, primarily, to assist the student to think independently on theological subjects, and to abide in the consequences. In pursuing this purpose attempt is made to co-ordinate the products of Biblical Theology, Religious History, Natural Theology, Ethics, and, indeed, of all the proper sources of material, and thus to produce a scientific theology. It is believed that such a system will deserve and receive the student's confidence, and will enlist his energies.

The subject has four great divisions, — the Doctrine of God, the Doctrine of Man, the Doctrine of Salvation, and the Doctrine of the Future Life. The traditional sub-divisions are noted historically, but are accepted only so far as they seem to rest on essential principles or the real relations of truth.

The method includes several stages: —

1. The outline history of thought on the topic in hand, or the analysis and classification of opinions and theories according to their logical relations.

2. The collection of the facts, so far as given in the present state of knowledge, and the criticism of the theories on the basis of the facts.

3. The organization of the results into a scientific product.

4. Illustrative applications to practical problems, — ecclesiastical, political, social, and personal.

This method requires frequent reference to books used in the departments whose products are here co-ordinated, and to the theological works of A. H. Strong, Charles Hodge, James Martineau, Robert Flint, J. A. Dorner, H. Martensen, J. Müller, and other representative teachers of all times and faiths.

The student is furnished with references to the various sources of material, he is instructed in the method of inquiry, and his results are criticised in the class-room. The occasional written examinations require original work, in part, and one original essay from each student is required within the year.

HOMILETICS.

The course in Homiletics covers one half of the Junior year and all of the Middle and Senior years, and includes the study of the most characteristic and instructive periods in the history of preaching; dictations and lectures on the idea and structure of the Sermon; analyses of portions of the Old and the New Testaments, with a view to the homiletical use of texts; the study of printed sermons, with special reference to form, expression, and the character and range of illustration; the composition and delivery of sermons, not less than six during the year, all of which are criticised by the class and by the professor; lectures during the Senior year on Invention and Arrangement of Material, Modes of Development, Style in Spoken Discourse, Helps in Sermon-Preparation, Illustrations and Use of Anecdote, the Homiletic Habit, Modern Schools of Preaching, Philosophy of Preaching, Personality in Preaching, Character and Preaching.

APPLIED CHRISTIANITY.

I. The History of Christianity is traced from its beginnings, with the special aim to discover by what methods the application of Christian principles has been secured and what results have followed.

II. The second part of this course is devoted to a study of Christian principles in their present-day applications, and of the Christian Church as it exists in modern times. Two principles are assumed as fundamental. (1) The office of the church is primarily that of spiritual culture. (2) The mission of the church is primarily to the individual. With these principles in view, an examination is made of the various forms of

Christian activity, with a view to ascertain their value and place in the church. The discussion includes the more personal ministrations of the church to its immediate constituency, and its more extended activities in society. This last involves questions relating to socialism, good citizenship, economic and moral reforms, and the like.

III. The final topic in this department is the pastor's office. The subjects discussed relate to the more private and personal care which the minister exercises toward the members of a single congregation, or toward others whom he may be expected to influence. Careful study is invited to the qualifications, spiritual, mental, social, of a good pastor, the methods of forming and strengthening a parish, the conduct of public worship, and the mode of conducting the special services of the church, — baptism, confirmation, the Lord's Supper, marriage. and the burial of the dead. The object of this part of the course is the practical preparation of the pastor for his sacred duties.

The work (II and III) of the Middle and Senior years is supplemented with lectures by clergymen and others, who are actively engaged in missions and charities; and the students are encouraged to visit churches and stations in the neighboring cities, that they may study methods in the field.

ORATORY.

The object of the instruction in the department of Oratory is a natural, impressive, and reverent manner of reading the Bible and the hymn-book, and also to cultivate in preaching a delivery that shall be forcible and sincere. To this end the work of the first year involves consideration of the fundamental principles that underlie all oratory, accompanied by practice to assimilate these principles. In the second year the practice becomes specifically adapted to the needs of students of divinity, and includes Scripture and hymn reading, and the preaching of both written and unwritten discourse.

PHYSICAL TRAINING.

Regular exercise in the Gymnasium is ordinarily required three hours a week of men students from the middle of November to the middle of March during the two years following entrance. The kind of exercise prescribed for each man depends on his physical condition, as determined by careful medical examination. Provision is made for continuing physical exercise throughout the whole course, according to individual needs.

General Information.

RELIGIOUS EXERCISES.

Devotional exercises, conducted by the professors and the students, are held daily in the chapel. Members of the upper classes prepare sermons and preach them in turn before the class. An active branch of the Young People's Christian Union holds regular meetings for religious conference.

EXAMINATIONS.

Frequent written reviews are held in all departments; and when any subject is completed, the students are required to pass a written examination thereon.

LIBRARIES AND LECTURES.

Students have free access to the general library of the College and to the valuable library of the Universalist Historical Society. Important public libraries of Boston are open to students for consultation.

Supplementary lectures, which bear upon the general work of the Christian ministry and upon special subjects of study, are given at intervals throughout the year by well-known clergymen of the vicinity.

ELECTIVE STUDIES.

Students are permitted to elect studies in other departments of the College, subject, however, to the discretion of the Faculty. Opportunities for pursuing advanced studies are offered to graduates and to others sufficiently qualified.

GENERAL FACILITIES.

Important facilities for general improvement are offered to students, in the valuable libraries and museums of Boston and vicinity. Elaborate courses of lectures on scientific, social, and literary subjects are presented to the public from time to time. The most noted divines of New England officiate every Sunday within easy distance, and may be studied by the student in respect to their teachings and their methods. It is the policy of the school to encourage the judicious use of these important instrumentalities of culture.

THE DEGREE OF MASTER OF ARTS.

THE DEGREE OF MASTER OF ARTS is conferred at the same time with the degree of Bachelor of Divinity upon Bachelors of Arts of Tufts College who have pursued with distinction the full course for B. D. This degree is conferred under the same conditions on Bachelors of Arts of other colleges whose courses of study have been equivalent to the course for which the degree of A. B. is given by Tufts College.

This degree may also be received by Bachelors of Arts who do not apply for the degree of Bachelor of Divinity, after taking with credit an approved course of one year or more in this school, under conditions defined in the statement of the Graduate Department.

BUILDINGS FOR THE USE OF THE DIVINITY SCHOOL.

Miner Theological Hall contains eight large, well-lighted, and well-ventilated lecture-rooms, and a special room for the meetings of the Faculty. Until other buildings are provided one of the rooms in this hall is used for the Historical and Reference Libraries, and one is appropriately furnished for the Religious Services of the school. A third room in the same hall is furnished as a parlor, and known as the Maria Miner Reception-Room.

Paige Hall, the dormitory of the Divinity School, contains thirty-six single rooms, heated by steam and lighted by gas. Each room is carpeted, and provided with all necessary furniture — except sheets, blankets, pillow-cases, and towels.

Rooms are assigned in the order of application, but no room is reserved for any applicant who does not appear within one week of the opening of the college year.

The women students in the Divinity School may find rooms and board in Metcalf Hall on the same terms and subject to the same conditions as apply to the women who enter the College of Letters.

EXPENSES AND PECUNIARY AID.

Students in the Divinity School are charged *one hundred dollars* annually for tuition. This charge includes the privilege of occupying a room in Paige Hall, and provision for heating and caring for it. A remission of one-half of this amount may be made by the Executive Committee of the Trustees to students who cannot be accommodated in Paige Hall or who live at home. The necessary expenses for board, washing, gas, and gymnasium charges do not exceed two hundred dollars a year. The General Convention of Universalists aids students by a free scholarship not exceeding one hundred and twenty-five dollars a year to any one student, subject always to the recommendation of the Faculty of the Divinity School; and the Faculty is authorized to assign special scholarships to those whose circumstances require this extra help. Those students, also, who are in the regular course are permitted to preach, under the direction of the Faculty, during the year and a half preceding their graduation. In this way they may add to their pecuniary resources.

BONDS AND DEPOSITS.

Each student who enters the Divinity School is required to deposit with the Treasurer of the College either a bond, with two satisfactory sureties, for the amount of one hundred dollars, or the sum of fifty dollars in money, which sum will bear interest at the rate of four per cent yearly, and will be returned to the student when he leaves the Divinity School, his term bills first being paid in full.

LICENSE TO PREACH.

The regular time for applying for licensure is near the close of the first half of the Middle year. Before that time the members of the Divinity School are not allowed to preach.

SCHOLARSHIPS AND SPECIAL FUNDS.

THE GREENWOOD SCHOLARSHIP.— The income of one thousand dollars, bequeathed by the late Mrs. Eliza M. Greenwood, of Malden, is given in prizes to members of the Divinity School for excellence in the department of Oratory.

THE DOCKSTADER SCHOLARSHIP.— The income of ten thousand dollars, given by George A. Dockstader, of New York, is appropriated to the aid of needy and worthy students.

The following scholarships of fifty dollars each are for the benefit of students in the Divinity School: —

THE WHITTEN SCHOLARSHIP.— Founded by Mrs. Maria F. Whitten, of Cambridge.

THE HOLT SCHOLARSHIP.— Founded by Miss Celia Holt, of Stafford, Conn.

THE HENRY L. BALLOU SCHOLARSHIP.— Founded by Susan Ballou, of Woonsocket, R. I.

TWO BRADLEE SCHOLARSHIPS.— Founded by the late Caleb D. Bradlee, D.D., of Brookline.

TWO GOLDTHWAITE SCHOLARSHIPS.— Founded by the late Willard Goldthwaite, of Salem.

THE SARAH ELIZABETH PERKINS SCHOLARSHIP.— Founded by James D. Perkins, of Brooklyn, N. Y.

The income of five hundred dollars, given by REV. JOHN VANNEVAR, is used in the purchase of books for the department of Homiletics.

THE MEDICAL SCHOOL.

Faculty of the Medical School.

ELMER H. CAPEN, D.D., PRESIDENT.

HAROLD WILLIAMS, A.B., M. D., 528 Beacon Street, Boston.
Dean and Clinical Professor of the Diseases of Children.

CHARLES P. THAYER, M.D., 74 Boylston Street, Boston.
SECRETARY *and Professor of General, Descriptive, and Applied Anatomy.*

HENRY W. DUDLEY, M.D., Abington.
Professor of Pathology.

——— ———
Professor of the Principles and Practice of Medicine.

FRANK G. WHEATLEY, A.M., M.D., North Abington.
Professor of Materia Medica and Therapeutics.

SAMUEL G. WEBBER, A.B., M.D., 419 Boylston St., Boston.
Professor of Neurology.

ERNEST W. CUSHING, A.B., M.D., 168 Newbury Street, Boston.
Professor of Abdominal Surgery and Gynæcology.

ARTHUR E. AUSTIN, A.B., M.D., 585 Washington St., Dorchester.
Professor of Medical Chemistry and Toxicology.

CHARLES A. PITKIN, A.M., PH.D., South Braintree.
Professor of General Chemistry.

JOHN L. HILDRETH, A.B., M.D., 14 Garden Street, Cambridge.
Professor of Clinical Medicine.

JOHN A. TENNEY, M.D., 2 Commonwealth Avenue, Boston.
Professor of Ophthalmology.

WALTER CHANNING. M.D., Brookline.
Professor of Mental Diseases.

THOMAS M. DURELL, M.D., Somerville.
Professor of Medical Jurisprudence.

FREDERICK L. JACK, M.D., 215 Beacon Street, Boston.
Professor of Otology.

GEORGE H. WASHBURN, A.B., M.D., 311 Marlborough Street, Boston.
Professor of Obstetrics.

FREDERIC M. BRIGGS, A.B., M.D., 299 Beacon Street, Boston.
Professor of Clinical Surgery.

CHARLES G. CUMSTON, B.M.S., M.D., 871 Beacon St., Boston.
Assistant Professor of Surgical Pathology.

TIMOTHY LEARY, M.D., Hotel Langham, Boston.
Assistant Professor of Pathology and Instructor in Bacteriology.

OTHER INSTRUCTORS.

WILLIAM R. WOODBURY, A.B., M.D., 164 Newbury St., Boston.
Lecturer on Hygiene and Instructor in Nervous Diseases.

WALTER J. OTIS, M.D., 267 Beacon Street, Boston.
Lecturer on Rectal Diseases.

WILLIAM S. BOARDMAN, A.B., M.D., 57 Hancock St., Boston.
Lecturer on Laryngology.

GEORGE A. BATES, D.D.S., Auburndale.
Lecturer on Histology.

GEORGE A. WEBSTER, M.D., 28 Greenwich Park, Boston.
Instructor in Otology.

EDWARD E. THORPE, M.D., 711 Boylston Street, Boston.
Instructor in Medical Chemistry.

HOWARD S. DEARING, A.M., M.D., 607 Tremont Street, Boston.
Instructor in Clinical Medicine.

HERBERT WARREN WHITE, M.D., 161 Warren St., Roxbury.
Instructor in Theory and Practice of Medicine.

E. CHANNING STOWELL, A.B., M.D., 9 Massachusetts Avenue,
Instructor in Children's Diseases. Boston.

ALBERT PRESCOTT MATHEWS, S.B., PH.D.,
Instructor in Physiology. Tufts College Medical School.

EDWARD L. TWOMBLY, A.B., M.D., 406 Massachusetts Avenue,
Clinical Instructor in Medicine Boston.

WARREN F. GAY, A.B., M.D., 416 Marlborough Street, Boston.
Instructor in Surgery and Assistant in Surgical Pathology.

JOSEPH C. STEDMAN, M.D., Warren Chambers, Boylston Street,
Instructor in Rectal Diseases. Boston.

ALBERT E. ROGERS, M.D., 143 Washington Street, Dorchester.
Instructor in Materia Medica and Therapeutics.

GARDNER W. ALLEN, A.B., M.D., Warren Chambers, Boylston
Instructor in Genito-Urinary Surgery. Street, Boston.

GEORGE F. HARDING, M.D., Warren Chambers, Boylston
Instructor in Dermatology. Street, Boston.

CHARLES F. PAINTER, A.B., M.D., 416 Marlborough St., Boston.
Instructor in Orthropædic Surgery.

HORACE D. ARNOLD, A.B., M.D., 188 Warren Street, Roxbury.
Instructor in Clinical Medicine.

GEORGE W. KAAN, M.D., Hotel Oxford, Boston.
Instructor in Clinical Gynæcology.

EUGENE T. McNAMARA, M.D., 773 Tremont Street, Boston.
Instructor in Electro-Therapeutics.

EUGENE THAYER, A.B., M.D., 2683 Washington St., Roxbury.
Demonstrator of Anatomy.

JOHN I. FRENCH, M.D., Winchester.
Assistant in Materia Medica and Therapeutics.

CHARLES D. KNOWLTON, M.D., 574 Warren Street, Roxbury.
Assistant in Theory and Practice of Medicine.

ELIZABETH A. RILEY, M.D., Charity Club Hospital.
Assistant in Gynæcology.

Laboratory Assistants.

JOHN J. McNAMARA, Brockton.
General Chemistry.

ISADOR H. CORIAT, Boston.
Medical Chemistry and Toxicology.

FRANK H. DUNBAR, Mansfield.

OLGA CUSHING, Boston.

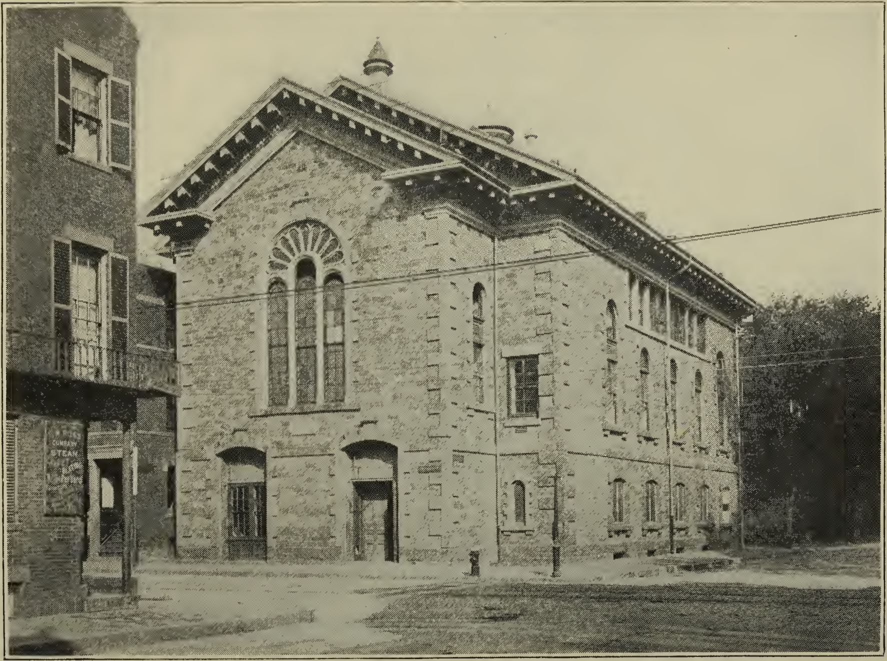
EDNA H. WEIL, Boston.
Pathology and Bacteriology.

ROBERT C. HALE, Boston.
Anatomy.

STANDING COMMITTEES OF THE MEDICAL SCHOOL.

Executive.— The President, Dean, Secretary, and Dr. Wheatley.
Catalogue.— Drs. Thayer, Williams, and Briggs.
Nominations.— The Dean, Drs. Channing and Wheatley.
Library.— Drs. Jack, Cushing, and Cumston.
Course of Instruction.— The Dean, Drs. Hildreth and Cushing.
Admission.— Drs. Austin, Leary, and Durell.
Dispensary.— The Dean, Drs. Briggs and Thayer.

THE
JOHN CRERAR
LIBRARY.



THE MEDICAL SCHOOL.

The Medical School.

The Tufts College Medical School was established in Boston in 1893. It is co-educational, women being admitted on the same terms as men. The school building is a handsome stone structure situated upon the corners of Rutland Street, Shawmut Avenue, and Newland Street, and has cost about $75,000.

The site was selected because of its proximity to the Boston City Hospital, the Boston Dispensary, and other charitable institutions; because of its easy accessibility to all parts of the city by means of the electric cars, which pass the door; because of the quiet of the neighborhood; and because its situation in the residential portion of the city afforded opportunities for the inexpensive boarding and lodging of students.

The arrangement of the school building itself is the outcome of the carefully matured deliberation of a building committee of the Faculty which visited the principal medical schools of New York, Philadelphia, and Baltimore. The plans, by Mr. George A. Clough, the architect of the Suffolk County Court House, and of other large public and school edifices, have resulted in a medical-school building which cannot be surpassed by any similar institution in New England.

At the rear of the building, and with a separate entrance on Newland Street, is the College Dispensary. This department, which is an innovation for New England medical schools, consists of a waiting-room for patients, a pharmacy, a surgeon's room, and a physician's room. It is believed that this feature will be of the utmost value to the students by familiarizing them with the practical treatment of patients, and the nature and dispensing of drugs. Fourth-year students will be required to serve in this department as clinical assistants to the various instructors. At the expiration of each term of service they will receive a certificate of such service; but no certificate will be given unless the work has been faithfully performed.

Third-year students (in sections) will study auscultation and percussion by means of the cases treated at these clinics. The advantage of giving so much of the instruction under one roof is too apparent to require comment. Cases are taken directly from the Dispensary and explained in detail or operated upon before the class. The object is to treat only cases which are of value in giving instruction, and the clinics show a good attendance. In this way the clinical facilities of the school are greatly augmented. Selected cases are presented to those classes which receive clinical instruction, and this method of teaching has proved of great value. Although less than one year in operation, the Dispensary has shown itself a decided addition to the teaching facilities of the Institution and one that will be a strong factor in its future.

CLINICAL ADVANTAGES.

Boston, as the largest city in New England, offers unusual facilities to the student of medicine. The amphitheatres of the Boston City Hospital, the Massachusetts General Hospital, the Massachusetts Charitable Eye and Ear Infirmary, are open to students, and opportunity is thus afforded for witnessing the more extensive surgical operations.

Clinics will be held at the Boston City Hospital, the Massachusetts Eye and Ear Infirmary, and at the Boston Dispensary, which latter, as the largest medical charity in Boston (42,587 cases were treated last year), affords an unsurpassed field for familiarizing the student with the various forms of disease. The school dispensary offers unusual clinical advantages. Members of the medical and surgical staff are also connected with various other institutions, among which may be mentioned the St. Elizabeth Hospital, the Somerville Hospital, the Cambridge Hospital, the Woman's Charity Club Hospital, the Free Hospital for Women, the Tremont Dispensary, and so far as possible the material thus afforded will be utilized for the benefit of the students.

Departments of Instruction.

ANATOMY.

PROFESSOR THAYER. DR. E. THAYER.	*Five hours a week.*

The course in Anatomy comprises, for the Freshman year, lectures, recitations, and demonstrations, illustrated by plates, models, and dissections. During the second year especial attention is devoted to Applied and Surgical Anatomy, and the relations of parts and organs in the various regions of the body are referred to, and their importance in the operations is emphasized and explained. In the dissecting-room the student is required to carry on his work with neatness and precision, under the supervision of the Demonstrator, thus acquiring that familiarity with the use of instruments which is essential to the practitioner. The new dissecting-room is fitted with all modern conveniences, and is under the personal supervision of the Professor of Anatomy. The dissections are made under the direction of the Demonstrator of Anatomy or his assistants, who will give all necessary assistance and advice. Abundance of material is furnished students at cost.

HISTOLOGY AND EMBRYOLOGY.

DR. BATES. *Four hours a week.*

The course in Histology is both didactic and practical, and consists of one hour of lecture and three hours of demonstration each week. The aim of the department is to present the subject comprehensively, beginning with the simple tissues, and by easy gradations presenting the more complicated structures of the body, thus enabling the student to acquire an intimate knowledge of the minute anatomy.

The department is equipped with microscopes and all materials necessary for practical demonstration.

The subject of Embryology is presented from the standpoint of the physician, the aim being to give the student such a knowledge of the subject as to enable him not only to comprehend those elements which are essential for his obstetrical work, but also to classify the tissues of the body according to our best knowledge of their origin in the embryo.

PHYSIOLOGY.

DR. MATHEWS. *Three hours a week.*

This branch is taught by means of lectures, recitations, and demonstrations. Beginning with a brief consideration of the more important groups of compounds of which the body is composed and to which it gives rise, the student passes to the study of the general chemical characters and reactions of blood and lymph, and of their relation to the tissues; this is followed with the physiology of muscle and nerve, especial emphasis being placed upon the phenomena of irritability, conductivity, utilization of energy, fatigue, etc., which these tissues present, and which make them more or less typical of living cells of all kinds. The remaining parts of the subject are then taken up in the following order: the circulation of the blood, digestion and absorption, respiration, excretion, nutrition, the central nervous system, the organs of special sense. It is the object of the course to give the student that thorough knowledge of the functions of the organs and tissues of the healthy human body without which he cannot hope to pursue to the best advantage the study of the abnormal conditions and workings of disease.

GENERAL CHEMISTRY.

PROFESSOR PITKIN. *Five hours a week.*

This course consists of Descriptive Chemistry and Qualitative Analysis, with so much of Theoretical Chemistry as is necessary for a proper understanding of the subject.

The classification of the carbon compounds, also, is taken up at considerable length, and special reference made to those which are of interest in the study of medicine. The instruction is by lectures, recitations, and practical work by the students in the laboratory. Much attention is given to Qualitative Analysis, both for the sake of the valuable training which it imparts and the knowledge of Chemistry which is incidentally gained. The importance of this knowledge is evinced by the fact that it is the only non-professional subject which is required in most medical schools. The aim is to impart such information in Chemistry as is necessary to the intelligent physician. At the same time any who wish to pursue the study further than is required of every graduate may do so by special arrangement.

Certificates of satisfactory completion of Courses 1, 2, and 3 in Chemistry in the Academic Department of Tufts College, or of the same courses in the Summer School, will be accepted in the Medical School in place of General Chemistry.

MATERIA MEDICA AND THERAPEUTICS.

PROFESSOR WHEATLEY.
DR. FRENCH.
Three hours a week.

Instruction in this department consists of lectures and recitations three hours a week during the year. Medicines will be exhibited as far as possible. Therapeutics will receive especial attention.

The metric system will be taught, and the ability to write prescriptions in both the old and the new systems will be insisted upon.

A reasonable amount of time will be devoted to the late additions to the Pharmacopœia.

MEDICAL CHEMISTRY.

PROFESSOR AUSTIN.
DR. THORPE.
Six hours a week required.
Twenty hours weekly optional.

This subject as taught here includes physiological and clinical chemistry and toxicology.

It is believed that the most thorough laboratory work should accompany instruction in the lecture-room. To this end practical examinations of blood, saliva, gastric juice, bile, and urine are made, with their clinical features constantly in view. Careful work is done on milk and fæces also, besides proteins, proteids, albuminoids, starches, sugars, and fats occurring in the body. Arrangements are made by which students may receive five hours' individual instruction daily if desired, and aid will be given those pursuing special investigations.

Toxicology is taught in its medico-legal and clinical aspect. In the laboratory the students learn to isolate metallic and alkaloid poisons from organic mixtures, food stuffs, vomitus, and blood.

The great importance of ptomaïns, especially as a source of error relative to alkaloids, is carefully shown.

Weekly papers are issued, embodying the methods of Hammarsten, Bunge, Neumister, Salowski, and others.

PATHOLOGY.

PROFESSOR DUDLEY.
ASSISTANT PROFESSOR LEARY. } *Five hours a week.*

Instruction in this department will consist of lectures, recitations, demonstrations, and practical laboratory work.

Demonstration of gross pathological specimens, obtained from operations and autopsies at the Boston City Hospital and other institutions, will take place once a week. This work will include the demonstration and recitation by students on pathological specimens.

For the work in pathological histology, two hours per week are required. Students will mount and make drawings, specimens comprehending all of the subjects of general pathology. Each student will be required to pass a satisfactory examination on the laboratory work.

It will be the aim to make clear the importance of a thorough knowledge of the causes, course, and results of pathological processes.

Microscopes will be loaned to those students who do not possess one, for a small fee.

BACTERIOLOGY.

DR. LEARY. *Four hours a week.*

Instruction in Bacteriology consists of lectures, recitations, and a practical laboratory course. While attention is paid to the technical details of laboratory work, the relation of bacteria to the diseases which they produce, the elaboration of toxines, the subject of immunity, and the important bearings of asepsis, antisepsis, and disinfection are especially emphasized. Particular attention is also paid to the application of all practical bacteriological tests made use of in medicine. The new bacteriological laboratory presents added facilities for the intelligent demonstration of this subject.

The optional course offered in this subject for fourth-year students will consist wholly of laboratory work. Instruction will include the manufacture of nutrient media, bacteriological diagnosis, test work with antiseptics and disinfectants; and every opportunity for advanced work will be furnished to students who desire to carry on original investigation.

THEORY AND PRACTICE OF MEDICINE.

PROFESSOR HILDRETH.
DRS. WHITE AND KNOWLTON. } *Three hours a week.*

CLINICAL MEDICINE.

PROFESSOR WILLIAMS.
DRS. DEARING, ARNOLD, AND TWOMBLY. } *Four hours a week.*

The course in Clinical Medicine is arranged as follows:— Once a week a clinical lecture is given by Professor Williams in the amphitheatre of the Boston Dispensary. At this exercise patients are shown and the diagnosis and treatment of the cases under observation are discussed. Once a week an exercise in auscultation and percussion is held by Dr. Dearing. This course is intended primarily for students of the third year. Once a week a course in physical diagnosis is held by Dr. Arnold. In addition to the above, cases of severe illness are assigned to every student. Written reports of these cases are required, and from these reports certain ones are selected for the clinical conferences, which are general meetings, held one evening a week at the school. Third and fourth year students and members of the board of instruction attend these conferences, and the cases are discussed by those present after the report has been read.

The final examination in Clinical Medicine is made up partly of a written examination and partly of the examination of patients at the clinics of Drs. Williams, Arnold, Dearing, and Twombly.

NEUROLOGY.

PROFESSOR WEBBER. *One hour a week.*

There will be one lecture each week, during the term, upon diseases of the nervous system. As preparatory to these there will be a brief review of the anatomy and physiology of the nervous system so far as necessary to understand the relations of the symptoms to organic changes in the nerve centres. The anatomy of the brain will be demonstrated, with special reference to localization of cerebral diseases. The lectures will be both clinical and didactic, and will be illustrated by diagrams, photographs, and microscopic preparations.

MENTAL DISEASES.

PROFESSOR CHANNING. *One hour a week.*

Instruction in this branch will consist of a course of lectures so arranged as to cover the whole subject of Mental Diseases. The lectures will be of a practical nature and will be adapted to the requirements of the general practitioner. They will be illustrated so far as possible by the exhibition of cases.

DISEASES OF CHILDREN.

PROFESSOR WILLIAMS. }
DR. STOWELL. } *Two hours a week.*

Instruction in this department consists of clinics, lectures, clinical conferences, and visits to sick children at their homes. The clinical advantages offered to students in this department are very great, and examples of nearly all the affections of infancy and childhood are shown to the students, including such rare diseases as are seldom seen outside the clinics of a large city. A course of didactic and clinical lectures, including the anatomy and hygiene of infancy and childhood, is given by Dr. Stowell, and special clinical instruction in the auscultation and percussion of children and the contagious diseases is given by Dr. Stowell, who receives the members of the class in small sections. Hour examinations are held in this department once every two months.

LEGAL MEDICINE.

PROFESSOR DURELL. *One hour a week.*

The course in Legal Medicine consists of one lecture each week during the first term, and will include all of the subjects which are usually included under the head of medical jurisprudence, together with a thorough course in the making of medico-legal autopsies, with as many practical demonstrations as possible. The duty of a physician to the Commonwealth, and his rights, both as a medical expert and as an ordinary witness, will be explained.

SURGERY AND CLINICAL SURGERY.

PROFESSOR BRIGGS.
DRS. GAY AND PAINTER. } *Six hours a week.*

The instruction in this department will consist of lectures, recitations, demonstrations, and clinical teaching upon the subject of general surgery. A course in operative surgery is given during the year, where students are required to perform the various operations upon the cadaver. Bandaging and apparatus receive careful attention, and each member of the Senior class is personally instructed in all the details. Etherization is taught by practical demonstrations, and it is endeavored to give each student opportunities of administering ether, thereby learning by practical experience the technique of anæsthesia. Commencing in January, there is a series of clinical conferences at which students present for discussion a full report of cases previously assigned. The surgical clinic at the school dispensary (in the building) will be open daily, except Sunday, throughout the year; the surgical department at the Boston Dispensary is open from July 1 to January 1, and the students of this school have numerous opportunities of witnessing all the operations in a number of hospitals, some directly, others not directly connected with this school.

ABDOMINAL SURGERY.

PROFESSOR CUSHING. *One hour a week.*

Professor Cushing will give one lecture weekly for twenty-one weeks to the students of the Senior class, on Abdominal

Surgery, including hernia, appendicitis, and the major operations on the female generative organs.

He will also give several demonstrations of the various operations on the cadaver.

GYNÆCOLOGY.

Professor Cushing.
Dr. Kaan.
Three hours a week.

Instruction is given both by lecture and by clinical teaching. Professor Cushing lectures once each week to the Senior class, and twice weekly sub-divisions of the class receive practical instruction from Instructor Kaan. Once each week a quiz is held by Assistant Riley on the lectures of Dr. Cushing. Arrangements have heen made by which students of the Senior class who wish to continue their studies after graduation may witness operations in the hospital services of Dr. Cushing.

Dr. Holden has also kindly consented to continue to give clinical instruction to a limited number of students at the Staniford Street Dispensary.

OBSTETRICS.

Professor Washburn.
Drs. Erb and Bateman.
Three hours a week.

Instruction in this department will consist of lectures, recitations, conferences, and clinical teaching. Lectures will be illustrated by plates and the use of the manikin. Each student will be required to care for at least two cases, clinical instruction being given with one of these, attending them throughout convalescence and handing in a written report of the same. Some of these reports will be read before the class, and subjected to discussion and criticism by class and instructor.

OTOLOGY.

Professor Jack.
Dr. Webster.
Two hours a week.

Instruction in this department will consist of lectures and clinical teaching. Clinics will be held at the Massachusetts Charitable Eye and Ear Infirmary, where nearly five thousand patients with ear disease are annually treated.

GENITO-URINARY DISEASES.

DR. ALLEN.

The various diseases of the Genito-Urinary system will be considered and illustrated by cases as far as practicable.

DISEASES OF THE RECTUM.

DRS. OTIS AND STEDMAN.

Instruction in this department will be given by Drs. Otis and Stedman at the Boston Dispensary.

OPHTHALMOLOGY.

PROFESSOR TENNEY. *One hour a week.*

This course will be of the most practical character possible, being designed to give the general practitioner such knowledge of the subject as is essential in his practice. The lectures, which are given once a week through the school year, will be fully illustrated by schematic representations, and again by clinical material, which is ample for that purpose.

LARYNGOLOGY.

DR. BOARDMAN.

Instruction in Laryngology and Rhinoscopy will be given by Dr. Boardman at the Boston Dispensary, beginning January 1, 1899, and continuing until April 1. The students of the Senior class will be divided into sections, and will visit the clinic of Dr. Boardman on Tuesdays, Wednesdays, Thursdays, and Fridays of each week, where an opportunity is afforded them for studying the diagnosis and treatment of diseases of the throat and nose by actual examination of the patients. The object of the course is to give instruction in cases of this class which are liable to come under the observation of the general practitioner, such as adenoid growth, diphtheritic false membranes, syphilis, tuberculosis, etc. The subject is also illustrated by lectures and diagrams.

DERMATOLOGY.

DR. GEORGE F. HARDING. *Two hours a week for twelve weeks.*

This course is a clinical one in which cases are shown by Dr. Harding in the departments for diseases of the skin, in the Boston City Hospital and in the Carney Hospital.

ORTHOPEDIC SURGERY.

DR. CHARLES F. PAINTER. *Two hours a week.*

This course consists of lectures and clinical demonstrations under the charge of Dr. Painter, and is given at the Boston Dispensary. The duration of this course will be subsequently announced.

Courses of instruction are open to the students at the clinics of the Free Hospital for Women, on payment of a moderate fee.

TEXT-BOOKS.

The first book mentioned is preferred as a text-book, the others being recommended as collateral reading.

Anatomy. — Gray, Quain, Morris, Weisse, Holden, Haynes' Dissector.

Physiology. — Foster, Kirke's Handbook (13th edition), Landois and Sterling, Martin's Human Body, Flint.

General Chemistry. — Witthaus (last edition), Remsen's Laboratory Manual, A. H. Elliott's Qualitative Analysis.

Histology. — Schäfer.

Medical Chemistry. — Tyson on the Urine, Simon's Clinical Diagnosis, Roberts on Renal and Urinary Diseases.

Toxicology. — Reese on Medical Jurisprudence and Toxicology, Wormley on Micro-Chemistry of Poisons.

Materia Medica and Therapeutics. — Bartholow (8th edition), Shoemaker (3d edition), Hare, Wood, United States Dispensatory (1890) Gerrish's Prescription Writing.

Pathology. — Greene, Warren, Ziegler.

Bacteriology. — Woodhead, Sternberg.

Obstetrics. — Lusk, Reynolds, Dorland, American Text-book.

Gynæcology. — Diseases of Women by A. Martin, American Text-Book of Gynæcology, Pozzi.

Surgery. — Roswell Park's Surgery, DaCosta, American Text-Book of Surgery, Dennis, Treves, Ashurst, Wyeth.

Practice of Medicine. — Osler, Pepper, Wood and Fitz, Ander's Practice of Medicine.

Clinical Medicine. — Osler's Practice of Medicine, Wood and Fitz Practice, DaCosta's Medical Diagnosis, Tyson's Physical Diagnosis.

Neurology. — Gower, Dana, Gray.

Mental Diseases. — Cloustin, Spitzka.

Pediatrics. — Holt's Diseases of Infancy and Childhood, Rotch's Pediatrics.

Otology. — Politzer and Bennett's System of Diseases of the Ear, Throat, and Nose.

Ophthalmology. — De Schweinitz, Nettleship, Noyes.

Medical Dictionary. — Dunglison.

OUTLINE OF THE COURSE.

Freshman Year.

Descriptive Anatomy. Lectures, dissections, and demonstrations.

Physiology. Lectures, demonstrations, and experimental work in the laboratory.

Histology. Lectures and required laboratory work.

General Chemistry. Lectures and required laboratory work.

Final examinations upon these subjects at the close of the first year.

Second Year.

Pathology. Lectures, demonstrations, and required laboratory work.

Bacteriology. Lectures and required laboratory work.

Applied Anatomy. Lectures and recitations.

Materia Medica and Therapeutics. Lectures and recitations.

Medical Chemistry and Toxicology. Lectures and required laboratory work.

Final examinations upon these subjects at the close of the second year.

Third Year.

Theory and Practice of Medicine. Lectures and recitations.

Surgery. Lectures and recitations.

Obstetrics, including attendance upon two cases of labor, lectures and recitations.

Abdominal Surgery and Gynæcology. Lectures and recitations.

Pediatrics.

Hygiene.

Final examinations upon these subjects at the close of the third year. Third-year students may also select any of the elective studies of the fourth year for study and examination, for which credit will be allowed them.

Fourth Year.

Clinical Medicine, Clinical Surgery, Ophthalmology, Otology, Neurology, Dermatology, Laryngology, Diseases of the Rectum, Genito-Urinary Diseases, Orthopedic Surgery, Mental Diseases, Electro-Therapeutics, and Legal Medicine.

The final examinations of the fourth year will consist of three hour examinations upon Clinical Medicine, Clinical Surgery, and two of the following subjects, which shall be elected by the student, and one hour examination on each of the others: —

Ophthalmology, Otology, Neurology, Dermatology, Laryngology, Diseases of the Rectum, Genito-Urinary Diseases, Orthopedic Surgery, Mental Diseases, Electro-Therapeutics, and Legal Medicine.

EXAMINATIONS.

There are two examinations held each year in the college building. They are in writing, and are held at the opening of the regular course of lectures in the fall, and at the close of the course in the spring.

The fall examinations are for

(*a*) Students commencing the study of medicine.
(*b*) Students applying for advanced standing.
(*c*) Students who failed in the spring.

The spring examinations are for promotion and graduation.

All students who intend taking any of the examinations must register their names with the Secretary on or before a date to be announced upon the bulletin.

Students who have failed twice in their examination upon a subject will not be admitted to a third examination without the payment of an extra examination fee of ten dollars.

Students are eligible for their examinations as follows: those of the Freshman year at the close of first year's course; those of the second year at the close of the second year's course, provided they have passed a majority of the Freshman examinations; those of the third year at the close of the third year's course, provided they have passed all of the Freshman and a majority of the second-year examinations; those of the Senior year at the close of the fourth year's course, provided they have passed all of the Freshman and second-year examinations, and a majority of those of the third year.

Requirements.

FOR ADMISSION.

All students must furnish a certificate of good moral character. Blanks for that purpose will be furnished by the Secretary.

To the Freshman Class.

(1) An English composition of not less than two hundred words.

(2) The translation of easy Latin prose, or evidence of a familiarity with the derivation of medical terms, and medical and pharmaceutical terminology.

(3) Higher arithmetic, including decimal and vulgar fractions and percentage.

(4) Elementary Physics. An acquaintance with the subject as treated in Avery's or Gage's work.

Students who fail in not more than two of these examinations may be enrolled as conditioned, and will be required to make up the deficiency during the session, before they can be enrolled as students in regular standing.

It is extremely desirable that candidates should have an easy reading knowledge of either scientific German or scientific French.

EXCEPTIONS. — No entrance examination is required of matriculates or graduates of medical, pharmaceutical, or dental colleges requiring a similar entrance examination, nor of matriculates or graduates of reputable colleges of literature, science, and the arts, nor of graduates of high or State normal schools or of institutions of similar grade, nor of students having certificates of having passed the examination of the Board of Regents of the State of New York. The entrance examination will be held on Tuesday, Oct. 3, 1899, at 3 P.M., at the College.

To save delay, students are requested to bring their diplomas and certificates with them.

To the Second-Year Class.

Graduates of Tufts College who have taken the medical preparatory course, which includes one year of anatomy and physiology at the Medical School, and graduates of other colleges or scientific schools in which an equivalent course is given, may complete the work required for the degree of M.D. in three years, such equivalent course being in part a year devoted to medical study.

Graduates of literary or scientific colleges who have not taken the medical preparatory course may be admitted to the second-year class, but will have to pass the examinations of the first year before they can become candidates for the degree.

Students who have passed a majority of the Freshman examinations may be admitted to the second-year class.

To the Third-Year Class.

Students who have passed all the Freshman examinations, and a majority of the second-year examinations, may be admitted to the third-year class.

To the Senior Class.

Students who have passed all the examinations of the Freshman and second year, and a majority of the subjects of the third year, and graduates of other regular medical schools, may be admitted to the Senior class.

FOR THE DEGREE OF M.D.

Candidates for the degree of Doctor of Medicine in the year 1900 and afterwards must have fulfilled the following requirements: —

1. They must furnish certificates that they are twenty-one years of age, and of good moral character.

2. They must have attended four full courses of medical

lectures at some accredited medical college, except as above noted, the last of which shall have been at this school, and no two courses in the same twelve months.

3. They must have passed all the required examinations.

4. They must have attended two cases of obstetrics.

5. They must have satisfactorily dissected one-half of the body under the direction of a Demonstrator of Anatomy.

6. They must have paid all fees before the final examinations.

The final marks in all subjects are derived from work in the recitations, laboratory, dissecting-room, and in written examinations.

The Faculty reserve the right to change these requirements from time to time without further notice.

EXPENSES.

Freshman Year.

Matriculation fee	$5.00
Demonstrator fee	5.00
General chemistry laboratory fee	5.00
Histology laboratory fee	5.00
General lecture ticket	100.00

Second Year.

Matriculation fee	$5.00
Medical chemistry laboratory fee	5.00
Pathology and bacteriology laboratory fee	5.00
General lecture ticket	100.00

Third Year.

Matriculation fee	$5.00
General lecture ticket	100.00

Senior Year.

Matriculation fee	$5.00
General lecture ticket	50.00
Graduation fee	30.00
Ticket admitting to the four years' lectures (when paid in advance)	300.00

Instruction in a single branch	$40.00
Graduates of other schools	50.00
Dissecting material	At cost.

The matriculation fee, demonstrator fee, laboratory fees, and one-half of the general lecture ticket must be paid in advance at the beginning of the year, on or before November 1; the second fifty dollars on the lecture ticket is due, and must be paid, on or before February 1.

No student will be allowed to attend any course of lectures without the certificate of the Bursar of the College.

The graduation fee is payable on or before the first day of May, and no student will receive a diploma from the College until the Bursar certifies that all fees or charges of any kind are settled.

The Bursar of the College will be at the Medical School for the purpose of collecting fees, a notice of the days and hours being previously posted on the bulletin-board.

General Information.

LIBRARIES.

The students have free access to the library of the new school, to the Library of Tufts College, and, under certain restrictions, to the Boston Medical Library and to the Boston Public Library, which latter contains a collection of over 15,000 books upon medical subjects.

SESSIONS OF THE SCHOOL.

The annual course of lectures begins on the first Wednesday in October of each year, and continues until the last Wednesday in May.

The next annual course of lectures will commence Wednesday, October 4, 1899.

VACATIONS.

There are no exercises at the school during the week of Christmas, Easter, Patriots' Day, Memorial Day, and three days at Thanksgiving.

STANDING AND CERTIFICATES.

Graduates of other regular medical schools in good standing may receive the degree of this school after attending one course of lectures and passing the examinations of the Senior year. It is understood that attendance upon a course of lectures requires actual presence at a majority of the exercises of the session.

Students who do not wish a degree will be received for any portion of the course. Any student may obtain a certificate of work done during his period of connection with the school. The use of tobacco in the lecture and recitation rooms will not be permitted.

The expenses of living in Boston vary according to the habits and desires of students, and need not exceed those in small cities and villages. Good board, including room, fire, and light, can be obtained near the school at from $4 to $7 per week. Near the school building are several excellent boarding-places charging moderate prices. Students will not be allowed to occupy rooms in the city that are not approved by the Faculty.

Requests for the Annual Announcement and all other communications relating to the business of the school should be addressed to Charles P. Thayer, M.D., Secretary, Tufts College Medical School, Boston, Mass.

THE BROMFIELD-PEARSON SCHOOL.

The Bromfield-Pearson School.

BOARD OF INSTRUCTION.

ELMER H. CAPEN, D.D., PRESIDENT.

GARDNER C. ANTHONY, A.M., DEAN,
and Professor of Technical Drawing.

FRANK T. DANIELS, A.M.B.,
Assistant Professor of Drawing,

ELBERT E. GIBSON,

JOHN P. CLARK,
Instructors in Mathematics.

SAMUEL C. EARLE, A.M.,
Instructor in French and English.

CHARLES H. CHASE, S.B.,
Superintendent of Shops.

STUDENTS.

All Engineering Students of Tufts College attending courses in shopwork, and the following pursuing preparatory courses: —

Cooper, Ashton	*Somerville.*
Hussey, Harry B.	*Hudson.*
O'Donnell, Thomas J.	*Lowell.*
Safford, Walter L.	*Woodfords, Maine.*

The Bromfield-Pearson School.

This department of Tufts College provides special courses of technical instruction for those who are qualified by previous education and maturity of mind to prepare for any of the Engineering Courses of the College in one year, or to pursue with equal advantage the special two-years' course of the school.

The first year may be taken as preparatory, either to the Engineering Departments of the College, or to the technical course of the school.

The course for the second year is arranged to meet the wants of those who are unable to pursue their studies for a longer period, but require the essentials of an engineering education presented in a concise and practical manner, to include elementary mathematics, mechanics, and technical drafting.

ADVANTAGES TO BE DERIVED FROM THE COURSE.

Students who pursue the preparatory course, and complete the work satisfactorily, will be admitted to the College on certificate.

Save in the elementary instruction in mathematics and English, the courses pursued are, in most respects, identical with those of the College.

Students who are partially prepared to enter the College may pursue advanced work in anticipation of their engineering studies, and thus shorten their college course.

Students who may pursue the two-years' course, and later decide to enter the College, will receive full credit, by the College, for all work satisfactorily performed which may be equivalent to that required in the Engineering Department.

The association with college work and college men places the student in better position to pursue his advanced studies.

The Gymnasium, Library, and Lecture-courses of the College are open to students of the school.

The mechanical equipment of the school is such as to afford exceptional opportunities for pursuing the practical courses in Carpentry, Moulding, Pattern Work, Forging, and Machine Work.

THE BUILDING.

The Bromfield-Pearson Building is a three-story building 100 by 50 feet, comprising drafting and recitation rooms, offices, and shops, for conducting the special courses of the school, and the department of drawing and shopwork in the College. The drafting-rooms are three in number, and separated from the noise and vibration of the shops. Abundant and uniform light is provided, rooms on the upper floor having large skylights on the northerly side. There is a forge, moulding, pattern, and machine shop. These are equipped with modern tools and in the most approved manner. Each student is provided with a separate bench, tools, forge, lathe, etc. A twenty-five horse power Buckeye engine furnishes the motive power for the shop, and together with a ten horse power plain slide valve engine serves for experimental work in the study of the steam engine. A one hundred and fifty light dynamo, designed and built at the school, provides the drafting-rooms and shops with electric light. One room is set apart as a study for such of the students as do not room at the College, and others who desire to prepare their lessons at the building.

Course of Study.

FIRST YEAR.

Preparatory Course.

Algebra is begun, and during the first three quarters will include quadratics, radicals, arithmetical and geometrical progression, together with the binomial theorem for positive exponents.

Geometry is begun during the first term, and continued throughout the year. The course includes plane geometry and all of solid, including spherical geometry.

PLANE TRIGONOMETRY may be taken during the fourth quarter.

ENGLISH GRAMMAR AND COMPOSITION is pursued throughout the year.

FRENCH for the entire year is required of those who are preparing for a college course. Special students may elect French.

DRAWING (Freehand) comprises the course required for entrance to the College, together with technical sketching and lettering.

DRAWING (Technical) includes the use of instruments, geometrical problems, elementary problems in projection (orthographic and isometric), tracing, blue printing, etc. Both this and the course in freehand are identical with the college course in drawing, and all (or a part) may be omitted by students fitting for College.

DESCRIPTIVE GEOMETRY may be taken by such students as are sufficiently prepared to enter the college class. This is pursued during the second term, and is required of those taking the two-years' course.

SHOPWORK is elective, and may be taken at any time when it will not interfere with required work.

Electives.

Those who are sufficiently prepared in any of the above studies may elect any of the following: —

Preparation in elementary algebra, as above, will admit to course in college algebra.

Preparation in elementary algebra, plane and solid geometry, will admit to Freshman mathematics.

As the instruction in drawing is largely individual, the student may take the grade for which he is prepared.

SECOND YEAR.

Special Engineering Course.

This part of the course is intended only for those who do not enter the Engineering Department of the College. Students will, however, be admitted to college classes for which they may be fitted.

Advanced Algebra and Trigonometry are pursued with the college classes during the first term.

Analytical Geometry is taken during the first term.

Calculus (Differential and Integral) is studied during the second term. This is elementary, and designed to give the student such a knowledge of the practical use of the science as shall enable him to read, in an intelligent manner, books involving its use.

Applied Mechanics is pursued for one term, and the subjects assigned for design are such as to afford a practical application of the theory. This includes the subject of Graphic Statics.

Machine Drawing. Much attention has been given to the method of presenting this work to enable the student to gain, in the shortest time, a comprehensive knowledge of the practical methods for the graphic representation of mechanical ideas. This work is conducted in precisely the same manner as in a well-organized drafting-room. It consists largely of freehand sketches and plainly finished drawings, made according to the most approved systems. Each student is now provided with a time-card on which a record is kept of the time employed in the execution of all drawings. It is not only necessary that drawings be well made, and accurate, but that a reasonable time be employed in their execution.

Kinematics. Under this head the subject of cams, gearing, links, etc., are treated, and much stress is laid on the practical application of the same. It is taught by means of graphic problems and lectures.

Machine Design is begun as soon as the student has become proficient in the preceding courses, and has acquired neatness, accuracy, and rapidity of execution. He is now encouraged to think and act for himself, thereby developing his intuitive ability and self-reliance. Many of the methods used in connection with this study are believed to be original with the school, and have resulted in a great saving of the student's time.

STEAM ENGINE. A brief course in the theory of steam is pursued in connection with the problems for design of Boilers and Engines. The subject of VALVE GEARS is considered at this time. The student is also taught to apply the INDICATOR and measure the power and consumption of water. Excellent opportunities are afforded at the College for this work, which is of the most practical character.

MOULDING. A short but comprehensive course in the foundry is required of all second-year students. The special object in this training is to acquaint the future designer with the methods employed in the modern foundry, and enable him to judge as to the best methods of constructing patterns. This work is of a very practical nature, consisting of the moulding of a great variety of patterns, the making of cores, and finally, the casting of the more important pieces.

SURVEYING. Such practice in the use of transit and level is afforded the student as shall familiarize him with their use, and enable him to make a simple survey.

Electives.

The following courses may be pursued in connection with the foregoing, when time and previous preparation will permit: —

PATTERN-MAKING. This course includes Carpentry, Turning, Pattern-Making, and Moulding. *Six hours a week (first half-year); three hours a week (second half-year).*

FORGING. In this short course it is designed to make the student familar with the metals and the method of working them. The exercises include heating, bending, drawing, upsetting, welding, tempering, case hardening, etc. *Three hours a week (second half-year).*

MACHINE WORK. Vise work in iron, including surface chipping, squaring, and fitting, key-seating, scraping, and polishing.

The machine practice consists not only in the operation of turning, planing, drilling, boring, etc., but in a careful study of the machines, their efficiency, and capabilities. *Six hours a week (second half-year).*

Physics. The aim is to present the science of Physics not as a series of detached subjects, but as a consistent body of doctrine, in which mechanical principles hold throughout, and from which all the various phenomena are deducible. Hence, in each branch of the subject there are frequent returns to these first principles. The rapid development of electrical science having quite outstripped text-books, this subject is treated wholly by lectures. *Three hours a week for the year.*

Physical Laboratory. In the Physical Laboratory, beginners are given Stewart and Gee's Practical Physics, first volume, for a guide. They work for the most part independently, and each pursues a given subject till satisfactory results are obtained. Glazebrook and Shaw's Practical Physics is followed on the subject of sound, heat, and light; Pickering's Manipulation, and Kohlrausch's Measurements, being also used to a limited extent. In electricity and magnetism Stewart and Gee's second volume is mainly followed, supplemented, in the case of engineering students, by parts of Gray's Absolute Measurements and Kempe's Testing. In all laboratory work each student records methods and results in a suitable note-book, and is encouraged to do a few things well rather than to go carelessly over a larger ground. *Six hours a week (second half-year).*

Chemistry. Instruction in this subject is given by means of lectures, recitations, and laboratory work. The lectures, which are illustrated by experiments, are intended to cover the ground of theoretical and descriptive inorganic chemistry, and to give the student a thorough knowledge of chemical theories, and of the more important chemical elements, and their compounds. Many of the methods for manufacturing chemical products for the market are carefully considered. The laboratory work occupies one-half of the time allotted to General Chemistry. Each student has ample opportunity to test experimentally the truth of chemical theories, and to become familiar with chemical substances and their behavior. The lectures are supplemented by recitations and written exercises. Students are charged for breakage, and four dollars a term for materials used. *Three hours a week for the year.*

General Information.

REQUIREMENTS FOR ADMISSION.

Students will be required to satisfy the instructors in charge of their ability to pursue the studies which they may elect. This may be done by certificate from a school previously attended, or by examination, oral or written, as may be deemed necessary.

In examinations, either for entrance or for advanced standing, the students are considered individually, rather than collectively, in order to give the instructor the fullest knowledge of the standing of the student, and enable the latter to take such a place in the school as shall best fit him for his future work.

REGULATIONS OF THE SCHOOL.

Students are subject to the rules governing college students.

Prompt and regular attendance, together with a faithful performance of all duties, is required.

Polite and orderly conduct is insisted upon, and any damage to school property must be made good by the student causing it.

Students who may elect any of the subjects in the regular college courses must attain at least seventy per cent in those studies in order to remain with the class.

No change in program is permitted during the term.

Only such students are encouraged to enter as may be thoroughly in earnest, and desire to make the most of their opportunities. To such, the institution offers exceptional opportunities.

Certificates of proficiency are given the special engineering students who shall complete either of the courses comprised in one year. These certificates state the subjects which have been completed according to the requirements of the institution. No diploma is given or degree conferred.

The tuition fee is one hundred and twenty dollars per year, payable as follows: sixty dollars on or before the 5th of October, and the balance on or before the 15th of March.

No part of the tuition fee will be refunded to pupils who for any reason withdraw from the school before the close of the term for which the fee is paid.

Students board in commons at $3.50 per week; in private families at $3.50 to $5.00 for table board and $1.50 to $2.00 for furnished room. Other expenses vary with the economy of each student. Students living in the college dormitories furnish their own rooms.

The following estimates represent the fixed annual expenses:

Tuition	$120.00	$120.00
Half room-rent	15.00	75.00
Care of rooms	10.00	10.00
Board $3.50 to $5.00 a week (36 weeks)	126.00	180.00
Physical training	———	10.00
Total	$271.00	$395.00

For other information address Gardner C. Anthony, Dean of the Bromfield-Pearson School, Tufts College, Mass.

THE SUMMER SCHOOLS.

The Summer School of Chemistry.

INSTRUCTORS.

FRANK W. DURKEE, A.M.,
Professor of Inorganic Chemistry.

VIRGIL L. LEIGHTON, A.M., PH.D.,
Instructor in Organic Chemistry.

STUDENTS.

1898.

Bixby, F. K.	*Woburn.*
Boynton, E. B.	*Malden.*
Brine, A. J.	*Somerville.*
Bush, Arthur Dermont Tufts College.	*Townsend.*
Brightman, Carl Gordon Tufts College.	*Round Pond, Me.*
Coulson, Richard	*Cambridge.*
Cushman, Clarence Alphonso Tufts College.	*Somerville.*
Daniels, Ora George Tufts College.	*Chelsea.*
Gage, Lucy Helen Tufts College.	*Medford.*
Hazelton, Willard Carpenter Tufts College.	*Stafford, Vt.*
Marsh, Frederick Charles Tufts College.	*Greenville, N. H.*
MacCormack, J. J.	*Woburn.*
Merritt, G. T. Teacher in the Public Schools.	*West Somerville.*
Murphy, Louis Sutliffe Tufts College.	*Somerville.*
Owen, L. H. A.B., Principal Woburn High School.	*Woburn.*
Pettengill, Clarence Albert Tufts College.	*Hudson.*

Rand, Charles Henry . . . . *Waltham.*
Tufts College.
Turner, Harry Chester . . . . . . *Tufts College.*
Tufts College.
Winslow, Evelyn James . . . . . . *Farmington, Me.*
A.B., Bates College. Instructor in Science, Farmington High School.

THE GENERAL PLAN.

The Summer School of Chemistry, opened in 1897, is in charge of Professor Durkee. Six of the regular college subjects, Chemistry 1, 2, 3, 4, 5, and 10 (see pages 73 to 76), are offered. Each subject has allotted to it the same number of lecture and laboratory periods that are provided for in the regular college curriculum. When satisfactorily completed the term hours which the subjects represent can be counted towards the number required for a degree. Subjects 1, 4, and 5 represent six term hours each, and 2, 3, and 10, three term hours each. The school, therefore, offers exceptional advantages to students of the College who wish to graduate in three years, as well as to students who wish to make up conditions or to lighten a subsequent year's program by working off their chemistry in advance. Applicants for admission to the College in the fall, who wish to offer chemistry for an entrance credit, can do the required work in the school, if not previously prepared for an examination. The school, furthermore, provides an opportunity for teachers in secondary schools to obtain a teaching knowledge of general inorganic chemistry, an elementary knowledge of organic chemistry, and to carry forward the study of chemical analysis.

The sessions of the school are held in the Chemical Building of the College, which is well equipped with lecture-room, laboratories, and modern apparatus for all kinds of chemical work.

EXPENSES.

Tuition for Chemistry 1, $20; for Chemistry 2 and 3, $20, or $12 for one of the two subjects; Chemistry 4 and 5, $20 each; Chemistry 10, $15. The cost of chemicals for each of the subjects 1, 4, and 5 is $8, and $4 each for 2, 3, and 10. Breakage depends entirely upon the care of the student, and averages about $4 in each of the longer courses. Board and furnished rooms can be obtained for $6 a week, and board near the chemical laboratory for $3.50 a week. Tuition and cost of chemicals must be paid on the first day of the term.

All communications relative to the Summer School of Chemistry should be addressed to PROFESSOR FRANK W. DURKEE, Tufts College, Mass.

The Summer School of Biology.

INSTRUCTORS.

J. STERLING KINGSLEY, A.M., S.D.,
Professor of Biology.
FRED D. LAMBERT, PH.D.,
GUY M. WINSLOW, PH.D.,
WILLIAM A. WILLARD, A.M.,
Assistants.

STUDENTS, 1898.

Allen, H. S. A.B., Colby University.	*Vassalboro, Me.*
Carvill, Lizzie Maud Tufts College.	*Somerville.*
Kingsbury, Walter Warren Tufts College.	*Walpole, N. H.*
Lamb, Arthur Beckett Tufts College.	*Attleboro.*
Lambert, Fred Dayton Ph. D., Tufts College, 1897; Instructor in Science in the Auburn High School.	*Auburn, Me.*
Magoun, Alice N. Teacher in Amherst High School.	*Amherst.*
Ruddick, William Henderson M.D., Harvard, 1868; B.A.S., Harvard, 1881.	*South Boston.*
Willard, William Albert B.S., Iowa College, 1895; A.M., Tufts College, 1898.	*Grinnell, Io.*
Winslow, Guy Munroe A.B., Tufts College, 1895; Ph.D., 1898; Instructor in Science, Lasell Seminary.	*Auburndale.*

A Summer School of Biology was opened during the summer of 1898 at South Harpswell, Me., on the shores of Casco Bay. The locality was found to be most favorable for such an addition to the college work. Marine life in great variety is very abundant. The neighboring shores afford opportunity for every kind of collecting. The climate is so tempered by the surrounding water that hot days are unknown, and board and rooms may be had at very reasonable rates. The session was so successful that it is hoped that the laboratory may be continued in the same place in the future. A decision upon this point will be made at an early date.

South Harpswell is reached by steamboat in two hours from Portland. It is at the extremity of a peninsula nine miles in length, and is almost entirely surrounded by water. The work will be practically the same as that given in the college courses 1, 2, 3, 6, and 8, and the same credit will be given for work completed to the satisfaction of the instructor as if the courses had been taken in the College. Board and rooms can be had at from *five dollars* a week upwards, while the tuition fee will probably be fixed at *twenty-five dollars* for the session; this to cover all expenses except dissecting-instruments and microscopic glassware. The laboratory will have every facility for collection and study. All inquiries regarding the Summer School of Biology should be directed to PROFESSOR J. S. KINGSLEY, Tufts College, Mass.

THE COLLEGE EXTENSION DEPARTMENT.

The College Extension Department.

EXECUTIVE BOARD.

ELMER H. CAPEN, D.D.,
President of the College.
EDWIN A. START, A.M.,
Director of the College Extension Department.
HERBERT E. CUSHMAN, A.M., PH.D.,
Secretary of the College Extension Staff.
GEORGE T. KNIGHT, A.M., D.D.

LECTURERS.

CHARLES P. THAYER, M.D.,	*Human Anatomy.*
GEORGE T. KNIGHT, A.M., D.D.,	*History of Religions.*
CHARLES A. PITKIN, A.M., PH.D.,	*Chemistry, Physics, and Mathematics.*
J. STERLING KINGSLEY, S.D.,	*Biology.*
FREDERIC W. HAMILTON, A.M.,	*Economics.*
EDWIN A. START, A.M.,	*History and Government.*
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WILLIAM K. DENISON, A.M.,	*Roman History and Literature.*
HARRY GRAY CHASE, B.E.E.,	*Electricity.*
CHARLES ST. CLAIR WADE, A.M.,	*Greek Literature.*
THOMAS WHITTEMORE, A.B.,	*English Literature.*

THE GENERAL PLAN.

The College Extension Department offers courses of consecutive lectures to be given in local centres where they may be desired, in series of five and ten, by members of the regular corps of instruction of Tufts College. It is the object of the work to bring to those who are not able to avail themselves of the regular resident work of the College, or to college graduates who wish to keep in touch with college influences, some of the results of modern thought, some currents from the stream of which the College is the reservoir. It does not propose any substitute for a college course, nor is it intended to make easier the hard road of learning. It does extend to a large class in the community opportunities which cannot exist apart from such work by the College, and hopes thereby to bring the College into closer relations with the community at large.

The courses of lectures offered will form the main body of the work. While the lecturers will aim to interest their hearers, the purpose is to instruct rather than to entertain. Syllabi can be obtained in connection with each course. These syllabi will contain outlines of the courses, and references and suggestions to guide reading and study in connection therewith. In connection with many of the courses supplementary work may be done, when desired, by members of the classes, under the lecturer's direction. The following courses are announced, but other subjects within the field of several of the lectures may be treated.

THE EXTENSION LECTURES.

English Literature.

1.—A Review of English Poetry from Chaucer to Tennyson. *Five lectures.* PROFESSOR MAULSBY.

2.— Shakespeare. A study of four plays, representing four stages in the author's growth, followed by a sketch of Shakespeare as man and dramatist. *Five lectures.* PROFESSOR MAULSBY.

3.— The Romantic Movement in England, with special reference to Byron, Shelley, Keats, Wordsworth, and Coleridge. *Five lectures.* PROFESSOR MAULSBY.

4.—The Development of American Literature. Bryant, Hawthorne, Poe, Longfellow, Whittier, Lowell, Emerson, Holmes, Whitman. *Ten lectures.* PROFESSOR MAULSBY.

Greek History and Literature.

1.— The Greek Tragic Drama, with reading of translations and parallel readings. *Five lectures.* ASSISTANT PROFESSOR WADE.

Roman History and Literature.

1.— Ancient Roman Life. Such subjects as the following may be treated: the house, family, daily life, dress, education, slavery, agriculture, trade, careers, amusements, religion, books, and libraries. *Five or ten lectures*, as desired. ASSISTANT PROFESSOR DENISON.

History and Government.

1.—An Introduction to the Science of History. This course is designed to be of assistance to readers and students of history who have not had guidance in scientific methods. The lectures will deal with the nature, meaning, and method of history, its beginnings, and some of the chief elements that enter into its movements. *Five lectures.* ASSISTANT PROFESSOR START.

2.—The American Revolution. A study of causes, forces, and results. *Five lectures.* ASSISTANT PROFESSOR START.

3.—Comparative Politics. The fundamental principles of the science of politics, and their application in typical constitutions, especially in those of France, Germany, Switzerland, England, and the United States. *Ten lectures.* ASSISTANT PROFESSOR START.

4.—History of Religions. The great non-Christian systems: of Egypt, Chaldæa, Hindustan, China, and Japan; of Gautama Buddha, Zoroaster, and Mohammed. *Five lectures.* PROFESSOR KNIGHT.

5.—Spain and Its Colonies, with special reference to the relations of Spain and the United States. *Five lectures.*
ASSISTANT PROFESSOR START.

6.—The Foreign Policy of the United States. *Five lectures.*
ASSISTANT PROFESSOR START.

Economics.

1.—Political Economy. A presentation of the fundamental principles of economic science. *Ten lectures.* MR. HAMILTON.

Physics.

1.—Electricity in Theory and Practice. The subject will be treated in a general way, with a desire to direct study in the several fields, and not to give the equivalent of class-room instruction. Such topics will be treated as electric lighting, the storage cell, electrical instruments, power transmission, street-railway work, and miscellaneous applications. *Ten lectures.* MR. H. G. CHASE.

Health and Its Preservation.

A course of ten lectures is offered by members of the Faculty of the Medical School. It comprises lectures upon surgical emergencies, and the care of the injured; general hygiene; infant hygiene and the care of children; the chemistry of cooking; the chemistry of food, bacteriology, physiology, etc. A number of subjects are included, each one treated by a trained specialist, and selections may be made from the list by those arranging for the course.

Anatomy.

1.— Human Anatomy. Particulars in regard to this course may be obtained of the Director. PROFESSOR THAYER.

Philosophy.

1.—Ancient Philosophy. Religious period of Greece; early philosophy, the Sophists, and Greek culture; Socrates, Plato, Aristotle, Democritus, and Greek science. *Ten lectures.* DR. CUSHMAN.

2.—History of the Astronomical Idea of Our Universe. *One lecture.* DR. CUSHMAN.

3.— Curious Evolution Theories. *Two lectures.* DR. CUSHMAN.

4.— History of Rational Protestantism. A popular presentation of the problems as discussed by Descartes, Spinoza, and Leibnitz. *Five lectures.* DR. CUSHMAN.

5.— History of Scepticism from Hobbes to Hume. *Five lectures.* DR. CUSHMAN.

6.— History of Idealism from Kant to Hegel. *Ten lectures.* DR. CUSHMAN.

7.— Modern Evolution. *One lecture.* DR. CUSHMAN.

8.— The Contents of the Mind,— memory, imagination, sensation, etc. *Ten lectures.* DR. CUSHMAN.

9.— The Ethical Life,— with the problems of free will, conscience, duty, rightness, God, immortality, evil. *Ten lectures.* DR. CUSHMAN.

Biology.

1.— The Animal World of To-day. Illustrated by diagrams and blackboard sketches. *Five lectures.* PROFESSOR KINGSLEY.

Music.

1.— General History of Music, with especial reference to the development of modern music. This course can be made up of *ten*, *fifteen*, or *twenty lectures*, according to the ground which it is desired to cover. PROFESSOR LEWIS.

2.— Harmony. A course of advanced study for those who are already familiar with the theory and terminology of Harmony. *Ten lectures.* PROFESSOR LEWIS.

Chemistry, Physics, and Mathematics.

Elementary courses in these subjects will be arranged to suit the needs of those who desire them. PROFESSOR PITKIN.

The regular fee for lecture courses is *sixty dollars* for courses of five lectures, and *one hundred and ten dollars* for courses of ten lectures. When illustrated lectures are given an additional charge will be necessary. The expenses of lecturers will also be charged to classes.

All bills are payable to the Director. Fees are due one half at the opening of a course and one half at its close.

All correspondence relative to the College Extension Department should be addressed to the *Director*, who will give advice and assistance in the organization of classes, and will furnish detailed information in regard to specific courses.

Address, The Director of the College Extension Department, Edwin A. Start, Tufts College, Massachusetts.

REGISTER OF STUDENTS.

Students.*

GRADUATE DEPARTMENT.

Fellows.

ALLEN, HARRISON SANBORN *Vassalboro, Me.* Middle Hall, 8.
A.B., Colby College, 1898. *Miner Fellow in Natural History. First Year. Biology.*

CAPEN, SAMUEL PAUL . *Tufts College* 8 Professors Row.
A.B. and A.M. 1898. *Olmstead Fellow in Natural History. First Year. Biology.*

Resident Students.

Gardner, Lucie Marion . *4 Lynde St., Salem.*
A.B. 1897. *First Year. English and Latin.*

Hall, Clifford Foster . . *Nashua, N. H.* 11 Fairmount St.
A.B. 1896. *First Year. Latin and Music.*

Maynard, Ernest Alston . *So. Berlin* 67 Revere Street, Boston.
A.B. Boston University, 1895. *First Year. Chemistry and Biology.*

Ruddick, William Henderson *502 East Broadway, South Boston.*
M.D., Harvard University, 1868. *B.A.S., Harvard University,* 1881. *Second Year. Biology.*

Whitehorne, William Risby *West Somerville* 14 Elmwood St.
A.B. 1895. *Third Year. Electricity.*

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* The right-hand column contains the college residence of every student having such residence, the neighboring cities of Somerville and Medford being thus included. The middle column records the home address.

COURSES IN ARTS AND SCIENCES.

[In the following list the course pursued by each student is indicated by the italic letters immediately following the name. The abbreviations are as follows: courses leading to the degree of A.B., *a b;* to the degree of Ph.B., *ph.;* to the degree of S.B.,—in Civil Engineering, *c e;* in Electrical Engineering, *e e;* in Mechanical Engineering, *m e;* and in the first year of the Engineering Courses, before the differentiation of studies, *e;* to the degree of S.B., through the Science Courses,—in General Science, *sc;* in Biology, *bi;* in Chemistry, *ch;* and Medical Preparatory, *m p.*]

Senior Class.

Bartlett, Lewis, *c e*	*Marblehead*	East Hall, 11.
Bean, Charles Alvin, *a b*	*Hudson*	Δ Τ Δ House.
Bradbury, Fannie Eliza, *a b*	*Milford*	Metcalf Hall, 3.
Brightman, Carl Gordon, *e*	*Round Pond, Me.*	Ζ Ψ House.
Buss, Arthur Stacey, *c e*	*Medford*	East Hall, 20.
Carleton, Grace Willis, *a b*	*Wakefield*	Metcalf Hall, 2.
Carpenter, Edwin King, *a b*	*West Medford*	West Hall, 24.
Carvill, Lizzie Maud, *a b*	*Somerville*	Metcalf Hall, 14.
Clough, Harry Wescott, *a b*	*Lowell*	Δ Τ Δ House.
Cogswell, Lena Rice, *a b*	*Gardner*	26 Conwell Ave., West Somerville.
Cooper, Orville, *e e*	*Picton, Can.*	23 Ware St., West Somerville.
Cousens, Kate Elizabeth, *a b*	*Brookline*	Metcalf Hall, 12.
Cousens, John Albert, *a b*	*Brookline*	
Cowan, Frank Joseph, *a b*	*Farmington, Me.*	East Hall, 12.
Davis, Mervin Nathaniel, *e e*	*Haverhill*	East Hall, 10.
Doane, Ernest Stanley, *ph*	*Marblehead*	Δ Υ House.
Eveleth, Charles Wonson, *m p*	*Marblehead*	West Hall, 6.
Gage, Isaac Bradlee, *a b*	*West Medford*	Dean Hall, 13.
Gibson, Elbert Eugene, *e e*	*Cherry Valley, Can.*	East Hall, 16.
Goudey, Grace Evelyn, *a b*	*Everett*	Metcalf Hall, 5.
Griswold, Fred Fay, *c e*	*So. Manchester, Conn.*	East Hall, 14.
Heath, George Byron, *ph*	*Calais, Me.*	West Hall, 7.
Holmes, Harry Emery, *c e*	*Medford*	East Hall, 7.
Howe, Frank Merrill, *a b*	*So. Weymouth*	East Hall, 23.
Hunter, Leslie Erastus, *e e*	*Essex Junction, Vt.*	East Hall, 32.
Kent, Ira Rich, *a b*	*Calais, Vt.*	Θ Δ Χ House.
Knight, Isabella Gertrude, *a b*	*114 Professors Row, Tufts College.*	
Knowlton, Frank Warren, *a b*	*New Bedford*	West Hall, 23.
Lane, Grace Harvey, *a b*	*165 Brooks St., West Medford.*	
Lawrence, Bertha Faustina, *bi*	*Stowe*	Metcalf Hall, 13.

Lewis, Florence May, *a b*	*Main St., Stoneham.*	
Litchfield, Harry Livingston, *e e*	*Fitchburg.*	West Hall, 27.
Lovering, Frank Woods, *sc*	*West Medford*	Δ Υ House.
Mange, John Isaac, *e e*	*Kingston*	East Hall, 4.
Marble, Ernest Gilman, *c e*	*Methuen*	West Hall, 23.
Morton, Anna Lucy, *sc*	*53 Hall Avenue, West Somerville.*	
Morton, George Fisher, *bi*	*53 Hall Avenue, West Somerville.*	
Nichols, Arvilla Florence, *a b*	*505 Broadway, Somerville.*	
Philbrook, Etta Frances, *a b*	*85 Ferry St., Everett.*	
Rich, Edward Wellington, *a b*	*West Acton*	West Hall, 27.
Richardson, Herbert Hay, *a b*	*Stoneham*	East Hall, 17.
Smith, William Boulay, Jr., *e e*	*New Bedford*	East Hall, 22.
Sturtevant, Morton Adams, *a b*	*Stoneham*	West Hall, 12.
Thompson, Walter Frank, *a b*	*Plymouth*	Dean Hall, 5.
Trow, Harris Cushman, *e e*	*Kingston*	East Hall, 23.
Vincent, Shelley Davis, *a b*	*Tufts College*	West Hall, 12.
Wallace, John Eugene, *e e*	*Waterloo, P. Q., Can.*	East Hall, 14.
White, Helen Ridler, *a b*	*Pawtucket, R. I.*	Metcalf Hall, 16.
Whitney, Arthur Bryant, *a b*	*Milford*	Dean Hall, 9.
Yeaton, Mary Frances, *a b*	*22 Pond St., Stoneham.*	

Junior Class.

Abbott, Stephen Edward, *e e*	*Andover*	Middle Hall, 12.
Allison, Fannie Gage, *a b*	*Woburn*	18 Talbot Ave.
Andrews, Charles Masson, *sc*	*Newtonville*	Δ Υ House.
Anthony, Madge Agnes, *a b*	*Adams*	Metcalf Hall, 6.
Atkinson, Martha Louise, *a b*	*Laconia, N. H.*	Metcalf Hall, 4.
Barron, Elmer Walter, *a b*	*Charlestown*	Δ Υ House.
Bellows, Louisa Jane, *a b*	*Spencer*	Metcalf Hall, 4.
Brooks, Joseph Bradford, *e e*	*Portland, Me.*	East Hall, 30.
Brown, Louis Raymond, *a b*	*Putnam, Conn.*	East Hall, 33.
Burton, Charles Ernest, *e e*	*Somerville*	West Hall, 2.
Chadwick, Henri Francis, *e e*	*Marion*	East Hall, 30.
Chase, Fred Marcellus, *ph*	*Newtonville*	West Hall, 16.
Christian, Leroy Bernard, *e e*	*Auburn, Me.*	Middle Hall, 9.
Clapp, Albert Lewis, *ch*	*Marblehead*	West Hall, 3.
Clark, Carrie Lois, *ph*	*W. Brattleboro, Vt.*	Metcalf Hall, 8.
Clark, John Putnam, *a b*	*Jamaica Plain*	Θ Δ Χ House.
Cole, Amy Lovett, *a b*	*13 Lincoln St., Somerville.*	
Conn, Wallace Thompson, *ch*	*Woburn*	Dean Hall, 13.
Cushman, Clarence Alphonso, *sc ph*	*Somerville*	Dean Hall, 11.
Daniels, Ora George, *a b*	*Chelsea*	Dean Hall, 2.
Davis, Ethel, *ph*	*Yarmouthport*	Metcalf Hall, 9.
Dearborn, Luther Gould, Jr., *a b*	*169 Sycamore St., Somerville.*	

Fay, Ethel Lincoln, *a b*	*92 Professors Row, Tufts College.*	
Gage, Lucy Helen, *a b*	*West Medford*	18 Talbot Ave.
Harmon, Ethel Bryant, *a b*	*Tufts College*	Prof. Harmon's.
Hart, Lester Stanley, *a b*	*Adams*	East Hall, 33.
Haynes, Lewis Henry, *e e*	*Newtonville*	East Hall, 24.
Hill, Adella Richards, *a b*	*22 Grand View Ave., Somerville.*	
Hunting, Ethel Parker, *a b*	*66 Highland Ave., Somerville.*	
Ingalls, Mary Anna, *a b*	*Auburn, Me.*	12 Curtis Avenue, W. Somerville.
Kempton, George Rutherford, *e e*	*Albany, N. Y.*	Θ Δ Χ House.
Kimball, Arthur Russell, *sc*	*Haverhill*	Dean Hall, 10.
Kirkpatrick, Charles Darrow, *e e*	*Charlestown*	East Hall, 29.
Lamb, Arthur Beckett, *a b*	*Attleboro*	Δ Υ House.
Lamb, Roland Manchester, *a b*	*Attleboro*	Δ Υ House.
Lane, Elizabeth Caldwell, *a b*	*165 Brooks St., West Medford.*	
Locke, William Lorenzo, *c e*	*Watertown*	East Hall, 16.
Lovell, Ernest Mills, *e e*	*Wayland*	
Marvin, Charles Remington, *a b*	*Roxbury*	Dean Hall, 13.
Meader, Edgar Keene, *m p*	*Marblehead*	West Hall, 7.
Parker, Laurence Houghton, *a b*	*Newtonville*	Δ Υ House.
Pettengill, Clarence Albert, *ch*	*Hudson*	Dean Hall, 11.
Phipps, Ross Elliot, *c e*	*Watertown*	Δ Υ House.
Raby, John William, *e e*	*So. Manchester, Conn.*	East Hall, 10.
Rand, Charles Henry, *e e*	*Waltham*	West Hall, 2.
Restall, Charles Henry, *e e*	*38 Carmel St., Chelsea.*	
Root, Francis Solomon, *e e*	*East Douglass*	East Hall, 15.
Shipman, Margaret Maude, *ph*	*Lewiston, Mont.*	101 Talbot Ave.
Spaulding, Alice Howard, *a b*	*10 Putnam St., Somerville.*	
Spaulding, Ernest Leonard, *a b*	*Jaffrey, N. H.*	11 William St., Somerville.
Spooner, Harriet Maria, *a b*	*Hinsdale, N. H.*	26 Conwell Ave., W. Somerville.
Tarbox, Carl Clifton, *a b*	*Biddeford, Me.*	Δ Τ Δ House.
Thomas, Irving Blo, *a b*	*So. Manchester, Conn.*	West Hall, 18.
Tousey, Ruth, *a b*	*106 Professors Row, Tufts College.*	
Wagner, Robert Edward, *e*	*Provincetown*	East Hall, 24.
Waterman, Harry Oliver, *a b*	*Jamaica Plain*	Ζ Ψ House.
Webber, Abbott Reed, *a b*	*Bedford.*	
Wiley, Harry Farrington, *a b*	*Peabody*	East Hall, 4.
White, Abbie Park, *a b*	*Taunton*	Metcalf Hall, 7.

Sophomore Class.

Almeida, Edward Mackay, de, *ph*	*Somerville*	West Hall, 9.
Armstrong, Roger Wellington, *a b*	*Waltham*	Dean Hall, 9.

Armstrong, Sara Mitchell, *a b*	*Everett*	79 Buckman St.
Bacon, Arthur Belmont, *e*	*Worcester*	Dean Hall, 10.
Berry, Joseph Francis, *ph*	*Mattapan*	West Hall, 22.
Boutelle, Arthur Maynard, *a b*	*Townshend, Vt.*	West Hall, 16½.
Bush, Arthur Dermont, *ph*	*Townsend.*	
Cabot, Harry Dwight, *a b*	*Newtonville*	Δ Υ House.
Chilson, Dean Leroy, *e*	*Franklin*	East Hall, 13.
Chubb, Thomas Briggs, *e*	*Tufts College*	Middle Hall, 11.
Collins, Lester Wright, *e*	*Meriden, Conn.*	East Hall, 2.
Cook, Helen Adelaide, *ph*	*379 Massachusetts Ave., Arlington.*	
Day, Francis Adams, *ph*	*Fitchburg*	West Hall, 18.
Derrick, George William, *bi*	*Cambridgeport*	West Hall, 31.
Dodge, Bertha Alma, *a b*	*Brattleboro, Vt.*	26 Conwell Avenue, W. Somerville.
Dodge, Carrie Gould, *ph*	*Orleans*	Metcalf Hall, 9.
Doten, Mabel Willard *a b*	*Plymouth*	Metcalf Hall, 3.
Druley, Elmer Morey	*Stafford, Conn.*	East Hall, 9.
Eriksson, August Isidor, *a b*	*Lawrence*	East Hall, 21.
Farrell, Ellen Frances, *a b*	*Somerville*	27 Austin St.
Foster, Kingsbery, *a b*	*Derby Line, Vt.*	West Hall, 25.
Frost, Jennie Clifton, *a b*	*58 Old Mystic St., Arlington.*	
Goodell, Robert Edward, *e*	*Lowell*	East Hall, 25.
Griffeths, Willis Wentworth, *c e*	*Medford*	East Hall, 6.
Hall, Samuel Thomas, *e*	*Sharon*	East Hall, 20.
Hawes, Austin Foster, *a b*	*Somerville*	East Hall, 27.
Hawley, Dexter Reynolds, *e*	*Waltham*	West Hall, 2.
Hayford, Frank Leslie, *ph*	*Barre, Vt.*	West Hall, 14.
Humes, Wesley Goodrich, *ph*	*Fitchburg*	Dean Hall, 12.
Ingalls, Nowell, *a b*	*Swampscott*	Dean Hall, 6.
Jenkins, Meritt, *ph*	*N. Weymouth*	Dean Hall, 14.
Joy, William Macy, *e*	*Meriden, Conn.*	East Hall, 2.
Kendall, Ralph Talbot, *e*	*Portland, Me.*	Dean Hall, 1.
Kinne, Edith Buffum, *a b*	*Barre, Vt.*	Metcalf Hall.
Knight, Gertrude, *a b*	*114 Professors Row, Tufts College.*	
MacQuinn, Marion Putnam, *a b*	*Melrose Highlands*	Metcalf Hall, C.
Marsh, Frederick Charles, *e*	*Greenville, N. H.*	West Hall, 9.
Mulliken, William Emery, *a b*	*39 Dartmouth St., Somerville.*	
Murphy, Louis Sutliffe, *ch*	*Somerville*	West Hall, 9.
Perham, Bertha Annah, *a b*	*22 Marshall St., Somerville.*	
Pierce, Leslie D., *ph*	*Rochester, Vt.*	West Hall, 21.
Pipe, Monica Glassbon, *ph*	*West Somerville*	75 Wallace St.
Platts, Cora Emerson, *ph*	*Orange*	16 Professors Row.
Price, William Hyde, *a b*	*Jamestown, N. Y.*	Δ Υ House.
Ramsey, Helen Mabel, *a b*	*Medford*	17 Hillside Road.

Reed, Ethel Gardner, *ph*	*Tufts College.*	
Rines, Mary Alice, *a b*	*South Berwick, Me.*	Metcalf Hall.
Rollins, Edwin Butler, *e*	*Westbrook, Me.*	East Hall, 11.
Ryan, Anna Imelda, *a b*	*274 School St., Waltham.*	
Sayles, Christine, *a b*	*Adams*	Metcalf Hall, 6.
Seede, John Augustine, *e*	*Lowell*	East Hall, 25.
Shearer, Edith May, *ph*	*33 Belmont St., Somerville.*	
Sibley, Julius Russell, *a b*	*Spencer*	Dean Hall, 14.
Taylor, Elizabeth French, *a b*	*Nashua, N. H.*	72 Professors Row.
Thomas, Ralph Danford, *e*	*Portland, Me.*	West Hall, 1.
Tolman, Charlotte Adelaide, *a b*	*23 Everett St., Medford.*	
Tucker, James Irwin, *e*	*Tufts College*	East Hall, 6.
Turner, Harry Chester, *ph*	*Tufts College*	West Hall, 28.
Tuttle, Lewis Cole, *ph*	*Needham*	West Hall, 1.
Walker, Clarence Doane, *e*	*Stafford Springs, Conn.*	East Hall, 8.
Wells, Leslie Custer, *a b*	*Foxboro*	Δ Υ House.
Woodward, Albert Sewell, *a b*	*Stoneham*	West Hall, 12.
Wright, Bertha Louise, *ph*	*Somerville*	Metcalf Hall, 15.
Wyman, Walter Forestus, *ph*	*Hyde Park*	West Hall, 8.

Freshman Class.

Abbe, Lena Pease	*Springfield*	424 Medford Street, Somerville.
Austin, William Willis	*Salem*	East Hall, 28.
Bailey, Dana Clark	*Cumberland Mills, Me.*	West Hall, 19.
Baker, Clair Lincoln	*Wollaston*	Dean Hall, 2.
Bickford, Wallace Mellen	*Auburn, Me.*	East Hall, 26.
Bixby, Herbert Dallas	*Lowell*	West Hall, 7.
Brade, William Abram	*Franklin*	West Hall, 31.
Brackett, Lila Winnifred	*Roxbury.*	
Burke, Josephine Rosamond	*157 Albion St., Somerville*	
Butler, Josiah	*Lowell*	East Hall, 28.
Capen, Ruth Paul	*8 Professors Row, Tufts College.*	
Chase, Albert Nathan	*Whitefield, N. H.*	
Chisholm, William Percy	*Marblehead*	13 College Ave., W. Somerville.
Coolidge, Richard Bradford	*Woodfords, Me.*	East Hall, 19.
Creeley, Oscar Slade	*Belmont*	East Hall, 18.
Dame, Ruth Burleigh	*Hastings Lane, Medford.*	
Danforth, Joseph Dexter	*Tyngsboro*	East Hall, 3.
Endicott, Winthrop Tingley	*Chelsea*	East Hall, 31.
Fox, Carrie Edwards	*383 Elm St., West Somerville.*	
Fiske, Samuel Spaulding	*Franklin*	College Ave., W. Somerville.

Gordon, Charles S.	*107 Zeigler St., Roxbury.*	
Hanson, Susie Myrtle	*Boston*	26 Conwell Ave., W. Somerville.
Hazelton, Willard Carpenter	*Strafford, Vt.*	College Ave., W. Somerville.
Hersey, Arthur William	*Dorchester*	East Hall, 34.
Holmes, Isabel	*Kingston, N. Y.*	Metcalf Hall, 10.
Huested, Alfred Pomfret	*Albany, N. Y.*	West Hall, 30.
Ingalls, Granville	*Swampscott*	Dean Hall, 6.
Johnson, Edna Henderson	*Spencer*	Metcalf Hall, 11.
Knight, Mabel Frances	*18 Hazel Park, Everett.*	
Lewis, Katherine Brooks	*130 Allston St., West Medford.*	
Lovell, Sarah Emily	*Wayland*	Wayland.
Lunt, Forrest Sumner	*Somerville*	East Hall, 8.
Lyon, Blanche E.	*392 Broadway, Somerville.*	
Manbert, Ray Barton	*Buffalo, N. Y.*	Θ Δ Χ House.
McCoy, Agnes I.	*62 Main St., Somerville.*	
Morley, Herbert Morley	*Baldwinville*	36 Emery St.
Moors, Charles Ernest	*Marlboro, N. H.*	East Hall, 13.
Morse, Arthur Henry	*Salem*	East Hall, 31.
Myles, Leo Thomas	*55 Hammond St., Cambridge.*	
Obear, Jessie Mabel	*14 Summer St., Beverly.*	
Orne, Grace Belle	*Freeport*	Metcalf Hall, 10.
Paine, Alice Cecile	*Hyde Park*	17 Talbot Ave.
Paterson, Fred William	*Portsmouth*	East Hall, 9.
Parker, Mary Bates	*19 High St., Everett.*	
Paul, Emma Franklin	*23 Monmouth St., Somerville.*	
Peirce, Arthur Cyrus	*Athol*	East Hall, 29.
Peirce, Herbert Russell	*27 Appleton St., Arlington Heights.*	
Polk, Ellery Channing	*Towanda, Pa.*	West Hall, 14.
Rallion, Harriet Elizabeth	*Norwich, Conn.*	Metcalf Hall, 7.
Richards, Bertha F.		
Richardson, Jr., Horace Kimball	*15 Hadley Place, Medford.*	
Roberts, Blanche Ethel	*13 Lynde St., Malden.*	
Russell, Elizabeth Adams	*182 Cambridge St., Winchester.*	
Sayles, Stanton Hopkins	*Uxbridge*	Dean Hall, 5.
Schneck, Emil Monger	*Shelbourne Falls*	Middle Hall, 11.
Schoolfield, Harrison Herbert	*Tufts College*	East Hall, 1.
Shute, Henry Martin	*Salem*	East Hall, 28.
Skeels, Wines Harris	*Watertown, N. Y.*	West Hall, 29.
Smith, Reginald Foster	*Lowell*	West Hall, 32.
Spring, George Edward	*Holliston*	East Hall, 13.
Spofford, George Rawson	*Hudson*	West Hall, 13.

Stowell, Edith Helen	*Putney, Vt.*	26 Conwell Ave., W. Somerville.
Sturtevant, Malcolm Eben	*31 Warren Ave., Somerville.*	
Sweet, Walter Orrin	*East Douglas*	West Hall, 31.
Tarr, Forrest Elliott	*Marblehead*	West Hall, 11.
Taylor, Howard Gordon	*Deering, Me.*	East Hall, 19.
Titcomb, Grace	*Farmington, Me.*	7 Francesca Ave., W. Somerville.
Titus, Marian Lucy	*Tufts College*	10 Raymond Ave., W. Somerville.
Totman, Ezra Percy	*Fairfield, Me.*	East Hall, 26.
Tuttle, Florence Rollins	*Salem*	Metcalf Hall, A.
Waite, Rosamonde Cordelia	*4 Oxford Terrace, Boston.*	
Warren, Mary Whittemore	*Leicester*	Metcalf Hall, 11.
Watkins, Florice Alison	*S. Manchester, Conn.*	5 Talbot Ave.
Whiting, Spencer Draper	*Pawtucket, R. I.*	West Hall, 26.
Woodbridge, Arthur Gerry	*Medford*	East Hall, 34.
Yates, Frank Brightman	*Waterville, Me.*	Z Ψ House.

Special Students.

[In the following list the Roman numeral indicates the year of attendance; the italicized department name is that of the student's major department; and the following subjects are those taken by the student for the current year. Abbreviations: Astron., Astronomy; Biol., Biology; Chem., Chemistry; Civ. Engin., Civil Engineering; Draw., Drawing; Elec., Electricity; Elec. Lab., Electrical Laboratory; El. Mech., Elements of Mechanism; Eng., English; Eng. Lit., English Literature; Geol., Geology; Germ., German; Hist., History; Math., Mathematics; Mech., Mechanics; Mech. Engin., Mechanical Engineering; Phil., Philosophy.]

Allen, Charles Rollin, Jr. *Barre, Vt.* West Hall, 15.
IV. *Civil Engineering.* Diff. Equa., App. Mech., Roads and Railroads, Pol. Sci. 1, Bridges, Plec., Design.

Allison, Irnie *Cherokee, Ia.* Metcalf Hall, 15.
II. *Eng.* Fr. 1, Phil. 1, Eng. 2, Biol. 1, Eng. 13, Pol. Sci. 1, Eng. 11.

Anthony, Charles Pearson *Tufts College.*
I. *Eng.* Eng. 1, Latin 1, Physics 1, French 2, Germ. 1.

Baker, Alice H. *Tufts College.*
II. *Music.* Music 2.

Bascom, Carrie Emily *Holden* Stoneham.
I. *Eng.* Fr. 4, Eng. 17, Eng. 11, Eng. 2, Eng. 13, Eng. 12, Germ. 5.

Benedict, Frank Howe *Williamstown, Vt.* West Hall, 16.
II. *Latin.* Math. 3, Math. 4, Fr. 1, Latin 1, Eng. 13, Or. 1, Eng. 2, Pol. Sci. 1, Phil. 1.

Bennett, George Warren *Monson* West Hall, 31.
II. *Eng.* Eng. 2, Biol. 3, Phys. Tr., Hist. 2.

Blaisdell, Albert Chester *North Woburn* 921 Main St.
II. *Eng.* Eng. 2, Fr. 2, Lat. 1, Chem. 2, Chem. 10, Chem. 4, Astron.

Born, Bessie May *Medford* 50 Winthrop St.
I. *French.* Fr. 2, Fr. 3, Germ. 1, Phys. 1, Eng. 12.

Bowen, James Francis *39 St. James Ave., Boston.*
I. *Eng.* Or. 1, Fr. 2, Math. 1, Chem. 1, Germ. 1, Eng. 1, Phys. 1.

Burrage, John Otis, *c e* *Lowell* Θ Δ X House.
III. *Civ. Eng.* Topog., Steam, Anal. Geom., Eng. 11, Elec., Elec. Lab., Chem., Jun. Drawing.

Burt, Louis Millens West Hall, 8.
I. *Pol. Sci.* Pol. Sci. 1, Pol. Sci. 2, Phil. 1, Phys. 1, Hist. 1.

Conway, Bessie Adele *37 Flint St., East Somerville.*
II. *Latin.* Lat. 2, Lat. 6, Eng. 2, Eng. 13.

Coughlin, Frank William *Lowell* East Hall, 15.
III. *Math.* Math. Jr., Drawing, Elec., Elec. Lab., Steam, Chem. 2, Eng. 11.

Cox, Harriet Agnes *West Medford.*
I. *Eng.* Eng. 1, Eng. 11.

Cummings, Allen *Woburn* East Hall, 18.
III. *Civ. Engin.*

Cutler, Augustus Leon *Wakefield* West Hall, 5.
IV. *Elec. Engin.* Elec., Elec. Lab., Pol. Sci. 1.

Eills, John *Tufts College* West Hall, 17.
I. *Pol. Sci.* Pol. Sci. 2, Germ. 7, Fr. 2, Eng. 13, Hist. 1, Phil. 12.

Gale, Clinton Fifield *Barre, Vt.* West Hall, 30.
I. ——. Latin 1, Germ. 1, Eng. 1, Math. 1, Phys. 1, Phil. 1, Or. 1, Astron. 1.

Gallivan, James Francis *Dorchester* Dean Hall, 4.
II. *Biol.* Eng. 2, Germ. 1, Biol. 2, Chem. 1, Phys. Tr.

Goss, James Herbert *165 Pleasant St., Marblehead.*
II. *Phil.* Fr. 4, Phil. 1, Eng. 2, Pol. Sci. 1, Astron., Or. 3, Phys. 6, Germ. 1.

Hartman, Maurice *Manchester, Conn.* 29 Raymond Ave., W. Somerville.
I. *Germ.* Fr. 2, Germ. 5, Hist. 1, Eng. 1, Or. 1, Eng. 12, Germ. 7.

Hoyt, Anadine *Lewiston, Me.* 17 Talbot Ave.
I. *Eng. Lit.* Eng. 1, Eng. 2, Eng. 11, Eng. 12, Eng. 17, Fr. 3, Latin 1, Or. 1.

Kingsbury, Walter Warren *Walpole, N. H.* Δ Υ House.
III. *Biol.* Germ. 1, Hist. 5, Chem. 1, Biol. 5, Eng. 2, Math. 7 Pol. Sci. 1.

McDuffee, Edgar Jerome *Bellows Falls, Vt.* West Hall, 10.
IV. *Elec. Eng.* Chem. 1, Steam, Hyd., Elec. Lab., Drawing.

Makechnie, Arthur North *Somerville.*
I. *Biol.* Fr. 1, Phys. 1, Biol. 2, Chem. 1, Phys. Tr., Pol. Sci. 1.

Proctor, Florence Bidwell *54 Spring St., Somerville.*
II. *Germ.* Fr. 3, Phil. 1, Eng. 2, Germ. 4, Eng. 13.

Quint, Charles Alden *Sanford, Me.* West Hall, 30.

Ray, Joseph Gordon *Unionville* Dean Hall, 8.
I. *Pol. Sci.* Pol. Sci. 1, Pol. Sci. 2, Fr. 3, Eng. 11, Hist. 1, Phil. 1.

Row, Arthur William *Fairmount St., Medford Hillside.*
II. *Eng. Lit.* Fr. 1, Phys. 1, Eng. 4, Eng. 13, Or. 2, Pol. Sci. 1.

Stearns, Carrie J. *Hinsdale, N. H.*
I. *Music.* Music 1.

Sweatt, Sadie Alice *146 George St., Medford.*
I. *French.* Fr. 2, Fr. 3, Music 1.

Weatherbee, Alforata Gridley *Bangor, Me.* Metcalf Hall, 17.
I. *Math.* Math. 1, Phil. 1, Germ. 1, Lat. 1, Astron., Eng. 11.

West, William Clough *Concord, N. H.* East Hall, 7.
II. *Eng.* Fr. 4, Phil. 1, Eng. 2, Biol. 1, Eng. 12, Pol. Sci. 1.

Wilson, Stanley Calef *Washington, Vt.* West Hall, 15.
II. *Eng.* Eng. 2, Eng. 5, Eng. 12, Phil. 4, Pol. Sci. 2, Fr. 2, Or. 3, Astron. 1.

Yamaguchi, Funi *Tokio, Japan* 22 Bellevue St., Medford Hillside.
II. *Biol.* Phys. 6, Biol. 3, Eng. 2.

DIVINITY SCHOOL.

Senior Class.

Cheever, Ralph Holbrooke . *Portsmouth, N. H.* Paige Hall, 19.
A.B., 1896.

Marvin, Reignold Kent . *Roxbury* . . Paige Hall, 24.
A.B., 1896.

Patterson, Charles Franklin	*Medford*	12 Maple Avenue.
Pennoyer, Charles Henry	*No. Hatley, Quebec*	Paige Hall, 6.
Petty, Charles Ellsworth A.B., Buchtel College, 1896.	*Akron, O.*	37 Sawyer Avenue.
Powell, Hannah Jewett	*Clinton, Me.*	424 Medford St., Somerville.

Middle Class.

Chase, Clarence Augustine A.B., Bates College, 1884.	*Auburn, Me.*	Paige Hall, 30.
Jones, George Milton	*Chicago, Ill.*	Paige Hall, 36.
Lewis, Lester Lothrop	*Providence, R. I.*	Paige Hall, 7.
Spear, Stanley Gates	*Hartland, Vt.*	Paige Hall, 31.

Junior Class.

Allen, Pliny Arunah, Jr.	*Mattapoisett*	Paige Hall, 13.
Couden, William Chase A.B., Buchtel College, 1898.	*Concord, Mich.*	Paige Hall, 25.
Moore, Willis Albert A.B., 1898.	*Somerville*	12 Mt. Pleasant Avenue.
Myers, Charles N.	*Detroit, Mich.*	20 Crocker St., Somerville.

Sub-Junior Class.

Cole, Fred Henry	*Ludlow, Vt.*	Paige Hall, 32.
Colson, George William	*Salem*	Paige Hall, 15.
Fuller, George Washington	*Bangor, Me.*	Paige Hall, 20.
Hatch, Wallace	*Roxbury*	Paige Hall, 5.

Special Students.

Kimball, Frances Augusta	*Poland, Me.*	37 Sawyer Avenue
Perkins, Oliver Howard	*W. Kennebunk, Me.*	Paige Hall, 18.

MEDICAL SCHOOL.

Resident Graduates.

Beal, Herman Alaric, M.D.	*Mattapan.*
Hinckley, James William, M.D.	*Boston.*
Meek, Edith R. E., M.D.	*Boston.*
Minard, Ralph W., M.D.	*Boston.*

Seniors.

Arnold, Cora Etta Bourn	*Providence, R. I.*
Babbitt, Henry Bradford, M.D.	*Somerville.*
Bigelow, Alfred Mahlon, M.D.V.	*Norwood.*

Bradley, James Joseph, A.B.	*Boston.*
Caisse, George Emile	*Lowell.*
Caplan, Elias	*Portland, Me.*
Clarkson, Thomas Carbarns	*Johnston, N. Y.*
Converse, Ralph Dent	*New York, N. Y.*
Cote, Honorê Joseph	*Boston.*
Flynn, John Ed Leo	*Cambridgeport.*
Gay, William Frederick, D.M.D.	*Ashmont.*
Harding, Walter Allen	*Franklin Park.*
Harris, Sylvia Fowler	*Berkeley, Cal.*
Hill, Phoebe Emma	*Dover, N. H.*
Holmes, Luke Melvin	*New Haven, Conn.*
Ives, Henry	*Boston.*
Ladd, Fred Eugene	*Brockton.*
Mayers, John Edward	*So. Boston.*
McIntosh, Elizabeth	*Medway.*
McLean, William Corbett	*Everett.*
MacNeil, Bernard Chester	*Boston.*
Martin, John Brayton	*Newtonville.*
Merrill, Stephen Douglass	*Boston.*
Powe, Albert Sensabough, M.D.	*Providence, R. I.*
Simpson, Joseph	*Essex.*
Symonds, Alice Gertrude	*Yarmouth, N. S.*
Tavernier, William Joseph	*Boston.*
Walker, Alba Gustavus	*Boston.*
Washburn, Frank Hall	*Boston.*
Yates, Cora Geneva, M.D.	*Cambridgeport.*

Juniors.

Angus, Charles Robert	*Cambridge.*
Bartlett, Philip Challis	*Amesbury.*
Bolles, Celia June	*Worcester.*
Chesley, Alice Maud Mary	*Exeter, N. H.*
Coriat, Isador Harry	*Boston.*
Cushing, Adelaide Olga	*Boston.*
Doucett, Frederick Luke	*Stoneham.*
Dunbar, Frank Herbert	*Mansfield.*
Fennell, William Hobin	*Lawrence.*
Forster, Robert William	*Lawrence.*
Goodrich, Harriet Rawson, B.S.	*Olivet, Mich.*
Gray, Alice Maud	*Boston.*
Greene, Eva Keith	*Malden.*
Hamblen, Howard	*Somerville.*
Hannaford, Charles William	*Portsmouth, N. H.*

Hayes, Wentworth Larrabee	*Gardiner, Me.*
Howe, Winfred Lewis	*Cambridge.*
Hughes, George Frederick, Jr.	*Somerville.*
Journeay, Warren William	*Boston.*
Kirshner, Adelaide Rosalind	*Boston.*
Lewis, Marion	*Jamaica Plain.*
Lindquist, Carl Augustus	*Boston.*
Lowell, Hannah	*Auburn, Me.*
Lowney, John Francis	*Fall River.*
Maney, John Joseph	*Methuen.*
McCarthy, Patrick Henry	*Chelsea.*
McLean, Norman Thomas, Ph.D.	*Boston.*
McLeod, John Scott	*Boston.*
McNamara, John James	*Brockton.*
Miles, Mary Ina	*Burlington, Vt.*
Moulton, Star Abner	*Bridgeport, Conn.*
Norton, George Edward	*Cambridgeport.*
Osborne, Arthur Decatur, A.B.	*Somerville.*
Patch, Jennie June	*Boston.*
Pike, Winfred Carle	*Boston.*
Price, Oscar Jay	*Milton.*
Richardson, Francis Allen, A.B., S.B.	*Cambridge.*
Small, Guy Darwin	*Boston.*
Smeltzer, James Finlay	*Boston.*
Stewartson, Charlotte Dodd	*Manchester, N. H.*
Weil, Edna Helen	*Boston.*
Williams, Charles Edward	*Boston.*
Woods, Helen Augusta	*Ayer.*
Woodworth, John Dawson Roswell	*Jamaica Plain.*
Yarashefsky, Mark Henry	*Woonsocket, R. I.*

Sophomores.

Alexander, Mattie Lena	*South Boston.*
Ash, Thomas Francis	*North Weymouth.*
Beddall, Albert Richard	*Chelsea.*
Blaine, Walter Edward	*Fairhavn*
Blake, James Henry, Ph.G.	*Fall River.*
Cheever, John Howard	*Portsmouth, N. H.*
Christie, Samuel Abraham	*South Acton.*
Clement, Merton Wallace	*Mattapan.*
Cogan, Thomas Francis	*Lynn.*
Connor, Justin Joseph	*Cambridge.*
Currier, Richard Doe	*Boston.*
Dacey, Cornelius J.	*Boston.*

Dadmun, Eliza Josephine	*Boston.*
Duckering, Florence West	*Dorchester.*
Durgin, Edward Chase	*East Andover, N. H.*
Dyas, Ira Everett	*Parrsboro, N. S.*
Fitzpatrick, John Joseph	*Newport, R. I.*
Gilman, Florence	*Braintree.*
Grandison, Wilfred George	*Charlestown.*
Hale, Robert Carleton	*Boston.*
Hayes, Blanche Adelyn	*Groveton, N. H.*
Hayward, Harrison Henry	*Randolph, Vt.*
Holmes, Burton N.	*Belmont.*
Hook, George Albert	*Somerville.*
Hurley, Daniel Breen	*Boston.*
Ingraham, Amanda Elizabeth	*Providence, R. I.*
Kirby, William Walter	*Providence, R. I.*
Killory, George Leo	*Weymouth Center.*
Leahy, James Percival	*Middleboro.*
Lovell, Harriet Jane	*Boston.*
Mason, George	*Pawtucket, R. I.*
McDonald, Frederick Cornelius	*Roxbury.*
Middleton, Willis Johnson	*Waverly.*
Moore, Henry Nelson	*Boston.*
Myers, Laura T.	*Boston.*
Nickerson, John Peter, B.S.	*West Harwich.*
Obear, Marion Helena	*Wellesley.*
O'Brien, Joseph Jeremiah	*Dorchester.*
Orr, Jane	*Boston.*
Otis, Susanna	*New Orleans, La.*
Page, Edward Lewars	*Lancaster, Pa.*
Paine, Louisa	*Providence, R. I.*
Parker, Albert Munro	*Boston.*
Pastene, Albert Angelo	*Roxbury.*
Rand, Angelo Walter	*Raleigh. N. C.*
Rundlett, David Livingston	*Boston.*
Shea, Alfred Drake	*Cambridge.*
Slade, James Henry, Jr.	*Quincy.*
Stickney, Whitman Gibson	*Brownfield, Me.*
Thyng, Cora Hanna	*New Hampton, N. H.*
Trower, Arthur Henry	*South Boston.*
Whitman, William Dutcher	*Malden.*
Williams, Hubert Joseph	*Boston.*
Williams, Richard Perry	*East Boston.*

Freshmen.

Adams, Eva Argene	*Brunswick, Me.*
Aspray, Joseph	*Boston.*
Baker, Lily Owen	*Boston.*
Barnum, Charles James	*Arlington.*
Bergin, Joseph	*Boston.*
Bloomberg, Senior	*Boston.*
Brooks, Edith May	*Springfield.*
Capen, Samuel Paul, A.B.	*Tufts College.*
Clarke, George Haven	*Concord, N. H.*
Collins, Thomas Herbert	*Methuen.*
Curtis, George Walter	*Stanstead, P. Q.*
Dearborn, Reuben Baston	*Brookline.*
Dubois, Eoline Beatrice Church	*Edgewood, R. I.*
Eldridge, Harvey Loud	*East Boston.*
Eveleth, Charles Wonson	*Marblehead.*
Feeley, Charles Philip	*Cambridge.*
Finegan, Daniel Joseph	*Watertown.*
Gallagher, John Vincent, A.B.	*Milford.*
Gill, Mary Eva	*Brookline.*
Gillette, George William	*Boston.*
Gosnell, James Burchill	*Charlestown.*
Harriman, Cora Elizabeth	*Framingham.*
Harvey, Albert Walter	*Concord, N. H.*
Hodgdon, Ralph Franklin	*Gloucester.*
Imminck, Harry William	*Wayland.*
Jackman, Alice May	*Wakefield.*
Jacobs, Charles Michael	*Boston.*
Killeen, John Patrick	*Lowell.*
Lamb, Joseph Elmo	*Revere.*
Lawrence, Maud Mary	*Boston.*
Lawton, William Francis	*Charleston, S. C.*
Lilienthal, Alice Estelle	*Cambridge.*
Long, Samuel H.	*Brockton.*
Lucas, Julian Dyer	*Norwich, Conn.*
MacCormick, John Allan	*Boston.*
MacKay, Andrew Joseph	*Salem.*
Malone, Charles	*Boston.*
Malone, John, LL.B.	*Boston.*
Masse, Marie Mathilde	*Boston.*
Mayell, Ernest Alfred	*Watertown.*
Meader, Edgar Keene, Jr.	*Marblehead.*
Mitchell, Ethel Susanna	*Plymouth, N. H.*
Mueller, Karl August Andreas	*Prescott, A. T.*

Murphy, Frank Augustus	*Taunton.*
Murray, Anna Tressa	*Boston.*
Nelligan, John Patrick	*Cambridge.*
O'Neil, William John	*Roxbury.*
Ordway, Mabel D.	*Dorchester.*
Osborne, Ernest Sumner	*Rochester, N. H.*
Paine, Alonzo Kingman	*Hyannis.*
Pearsall, George Richard	*Springfield.*
Pease, Lewis Waite	*Weymouth.*
Percival, Charles Gilbert	*Boston.*
Peters, William Chute	*Newburyport.*
Prowell, Mary Arleta Scott	*Dayton, Ala.*
Ravich, Simon	*Boston.*
Rich, Charles Edwin	*Auburn, Me.*
Robinson, Franklin Ellis	*Brockton.*
Rose, William Milton	*Cambridge.*
Savage, Joseph John, A.B.	*Somerville.*
Simmons, Hannah Coralynn	*Worcester.*
Smith, Forster Hanson	*Lowell.*
Stickney, Elizabeth Mary	*Dorchester.*
Tangney, Charles William	*Rockland.*
Taylor, Herbert Leonel	*Portsmouth, N. H.*
Thomas, Emery Jordan	*Lewiston, Me.*
Watkins, Claude Elwood	*Ayer.*
Williamson, William Ernest	*Lowell.*

Special Students.

Besse, Herbert Alden	*Sherborn.*
Blanchard, Benjamin Dean	*Maynard.*
Bragg, Henry Willard	*Westfield.*
Brine, Lon F.	*Somerville.*
Buss, Charles H.	*Woburn.*
Butler, Robert G.	*Williamsport, Pa.*
Carroll, Charles	*Peabody.*
Chapman, Louis Nathan	*West Newton.*
Cleary, William Adelbert	*Taunton.*
Copithorn, Willard Osgood	*Natick.*
Costello, Francis Joseph	*Newton Lower Falls.*
Crosby, Georgina	*Somerville.*
Cunningham, Edward Jerome	*Providence, R. I.*
Dakin, Reginald Percy	*Portland, Me.*
DeWitt, William Price	*Fulton, N. Y.*
Dolan, Francis Joseph	*Boston.*
Ellis, Edward Keith	*Hydt Paak.*

Fiske, Henry Martin	*Milford, N. H.*
Freeman, Edward Allen	*Lawrence.*
Good, John Patrick	*Cambridge.*
Hardon, Charles Morton	*Mansfield.*
Havey, William Henry	*Waltham.*
Higgins, John Walter	*Bath, Me.*
James, Everell	*Danielson, Conn.*
Keltie, James	*Jamaica Plain.*
King, Clifford Leonard	*Maynard.*
Labonte, Joseph Albert	*North Cambridge.*
Larkin, Joseph Francis	*Woburn.*
Livingstone, Isabel C. R.	*Hyde Park.*
McSweeney, Daniel Joseph	*Woburn.*
Mahan, William Andrew	*Natick.*
Manning, John Charles	*Rochester, N. H.*
Manning, John Henry	*Providence, R. I.*
Marren, Arthur Quinlan	*Lowell.*
Means, Harry Fuller	*South Boston.*
Nugent, Thomas Joseph	*Milford.*
Neales, James	*West Somerville.*
Pierce, John Francis	*Roxbury.*
Russell, Sylvester Frederick	*Brockton.*
Ryder, Frank Arthur	*Somerville.*
Shanks, Byron Claude	*St. Albans, Vt.*
Sharpe, Merton Roy	*Putnam, Conn.*
Shaw, Arthur	*Middleton, N. S.*
Soule, Harmon Boutell	*Bakersfield, Vt.*
Springer, Oscar Martin	*Dobromil, Austria.*
Staples, Byron Frederick	*Portsmouth, N. H.*
Sullivan, George Augustus	*South Boston.*
Vroom, Ross	*Clementsport, N. S.*
Walsh, Patrick Bernard	*Natick.*
Young, Robert William	*Rockland.*

Summary.

Corps of Instruction.

Emeritus		3
Professors	34	
Assistant Professors	8	
Instructors	25	
Lecturers	8	
Assistants	13	
Total engaged in work of instruction	—	88

Students.

COLLEGE OF LETTERS:		
Graduate	7	
Senior	50	
Junior	59	
Sophomore	64	
Freshman	76	
Special.	36	
	—	292
DIVINITY SCHOOL:		
Senior	6	
Middle	4	
Junior	4	
Sub-Junior	4	
Special.	2	
	—	20
MEDICAL SCHOOL:		
Graduates	4	
Senior	29	
Junior	45	
Sophomore	54	
Freshman	68	
Special	50	
	—	250
SUMMER SCHOOLS	28	
BROMFIELD-PEARSON SCHOOL	5	
	—	33
Total number of students		595
Names appearing twice		15

DEGREES AND HONORS
1897-98.

Forty-Second Annual Commencement.

June 15, 1898.

DEGREES CONFERRED.

HONORARY.

Doctor of Laws.

ERNEST W. CUSHING.

Doctor of Philosophy.

WILLIAM LESLIE HOOPER.

Master of Arts.

MYRON JAY MICHAEL.

Doctor of Divinity.

IRA ALLEN PRIEST.

IN COURSE.

Bachelors of Arts.

MALCOLM CAMPBELL ANDERSON (with Final Honors in Greek and Latin).
JOHN EMERSON ARNOLD (with Honorable Mention in Philosophy and French).
PERLEY EUGENE BOOMER.
LULA ADINE HOWE BUCK (with Honorable Mention in Philosophy).
SAMUEL PAUL CAPEN (with Honorable Mention in French and German).
EDWARD PERKINS CLARKE (extra ordinem).
GEORGE EMORY DANIELS.
JAMES FRANK DONALDSON.
MARY ELIZA EVANS (with Final Honors in German and Latin and Honorable Mention in French).
GEORGE FLEMING FORSTER (with Honorable Mention in English Literature).
MARION LENORE FLINT (with Honorable Mention in English Literature).

FRANCES CROCKER GIFFORD (with Final Honors in Latin, and Honorable Mention in German and English Literature).
BEATRICE ALEXANDRA GRANT (with Final Honors in German and Latin, and Honorable Mention in French).
ROLAND HAMMOND, Jr. (with Honorable Mention in Biology).
EDWARD DUNBAR JOHNSON.
WILLIE PARKER JONES (with Final Honors in Latin, and Honorable Mention in English Literature).
BENJAMIN DEXTER MAY (with Honorable Mention in German).
WILLIS ALBERT MOORE (with Honorable Mention in German and Music).
FRANK LINCOLN PEIRCE.
CLARA RANSOM (with Final Honors in German).
WILLIAM RICHARD RANSOM (with Final Honors in Mathematics).
JAMES PORTER RUSSELL (with Honorable Mention in Philosophy and Political Science).
SYLVANUS GRISWOLD SMALL (with Final Honors in French, and Honorable Mention in German).
SIMEON CONANT SMITH (with Honorable Mention in English Literature).
KATHERINE LOUISE STEBBINS (with Final Honors in German).
HAROLD EDWARD SWEET (with Honorable Mention in German, French, and Philosophy).
COLEMAN TOUSEY (with Honorable Mention in English and History).
WALTER FREDERICK WELCH.
WALTER GEORGE WHITMAN (with Honorable Mention in German).

Bachelors of Science in Civil Engineering.

GEORGE EDWARD AHERN.
EDMUND MERRITT FRENCH.
GEORGE ALEC HARWOOD.
JOHN ARTHUR MADDOCKS.
EDWIN ADAMS SHAW.
ANSON MERRILL TITUS.

Bachelors of Science in Electrical Engineering.

HERBERT WOODBURY ANDREWS (with Final Honors in Electricity).
GEORGE ALEC HARWOOD.
GUY EDWARD JONES.

ROBERT HAYWARD PARKE.
WALTER ARTHUR PATTERSON.
LLEWELLYN ROOD PERKINS (with Final Honors in Electricity).
FRANK ROBERT SCHOOLFIELD.
FREDERICK EDWARD TOWN.
ROY TITUS WELLS.

Bachelors of Science in Chemistry.

RALPH LYMAN BURBANK.
WALLACE HUMPHREY GRAVES (with Final Honors in Chemistry).

Bachelors of Divinity.

FANNIE ELMINA AUSTIN.
DWIGHT AMBROSE BALL.
EDWARD MITCHELL BARNEY.
CLARENCE LIVINGSTONE EATON.
TACY MATHEW.
LUCY ALMIRA MILTON.
EDSON REIFSNIDER.
HARRY ENOCH ROUILLARD.
WILLIAM JOHN TAYLOR.

Doctors of Medicine.

LEWIS FORRESTER BAKER.
HERMAN ALARIC BEAL.
TEKLA AMALIA JOSEFINA BERG.
ALEXIS EVARISTE BERTRAND.
WALTER EDWARD BOETZKES.
BRUCE TUCKER BOWENS.
CHARLES JAMES BURGESS.
MAUDE FLORENCE CAIN.
GEORGE BERESFORD CAULFIELD.
FRANCIS ALFRED CORBETT.
HARRISON MURRAY CRITTENDEN.
AMBROSE CROWLEY.
HENRY DALTON.
WINNIFRED PUFFER DAVIS.
DAVID CROOKER DOW.
FLORA EVA FROST.
OSCAR THOMPSON GEHRIS.
FRANK LESLIE GILBERT.
WILLIAM FREDERICK ALOYSIUS GILLAN.

MAXIMILIAN CHARLES VON GROLL.
WALTER DAVIS HALL.
EDWARD EVERETT HAMBLEN.
THOMAS HENRY HEATON.
JAMES WILLIAM HINCKLEY.
LUTHER ALBION HODGDON.
WILLIAM TIMOTHY HOLLAND.
ANNE PROSSER HOLT.
JOSEPH DIMOCK HOWE.
ANNA GERTRUDE JUDKINS.
FRANK ELLSWORTH LANE.
JOSEPH HENRY HART KELLEY.
MARY GORDON LIBBY.
THOMAS EUGENE LILLY.
CYRUS DECKER LLOYD.
CHARLES EDWIN LOCKWOOD.
EDITH R. E. MEEK.
RALPH WALDO MINARD.
CARRIE NORTH.
JOSEPH PETLUCK.
EUSTACE PALMER REID.
HERBERT LOWELL RICH.
MARY WELLINGTON ROWLEY.
OTHO LESTER SCHOFIELD.
HARRY EDWARD SISKE.
FRANCIS HERVEY SLACK.
ALFRED CHARLES SMITH.
RUEY BARTLETT STEVENS.
CHARLES WILLIAM STODDER.
LIONEL ALEXANDER BURNET STREET.
FREDERICK FINCH STRONG.
CHARLES CRAWFORD STROUD.
PETER HUNTER THOMPSON.
HARRY LESLIE TRUWORTHY.
FRANK LEWIS WHIPPLE.
ALMIRA JANETTE WILSON.
MARY ANNA WOOD.
RAYNOR WOODHEAD.
EMMA ELIZABETH YOUNG.

Masters of Arts.

MALCOLM CAMPBELL ANDERSON.
GEORGE FREDERICK BAMPTON.
SAMUEL PAUL CAPEN.

CLARENCE LIVINGSTONE EATON.
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FELIPE CARDENAS.
HENRY WILDE HAYES.

Doctor of Philosophy.

GUY MUNROE WINSLOW.

AWARDS OF PRIZES, 1897–98.

Greenwood Prize Scholarship in Oratory.

Simeon Conant Smith.

Rhetorical Prizes.

First Class.

Kingsbury Foster (1).
Edith Buffum Kinne (2).

Second Class.

Carl Clifton Tarbox (1).
Charles Remington Marvin (2).

Third Class.

Grace Evelyn Goudey (1).
Simeon Conant Smith (2).

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Universalist Publishing House	*Boston.*
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Winn, Maria P.	*Woburn.*
Ward, Sylvester L.	*Boston.*

White, Joshua S.	*Pawtucket, R. I.*
Whitney, Catherine B.	
Whittemore, Thomas	*Cambridge.*
Whittemore, Mrs. Lovice C.	*Cambridge.*
Whitten, Mrs. Maria F.	
Whiting, Amos	*Lowell.*
Wright, Nathaniel	*Bloomington, Ill.*
Woodbridge, Samuel F.	*Cambridge.*
Walker, William J.	*Newport, R. I.*
Wade, John	*Woburn.*
West, William P.	*Halifax, N. S.*
Waldmeyer, Philip	*Everett.*

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OF

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1899-1900

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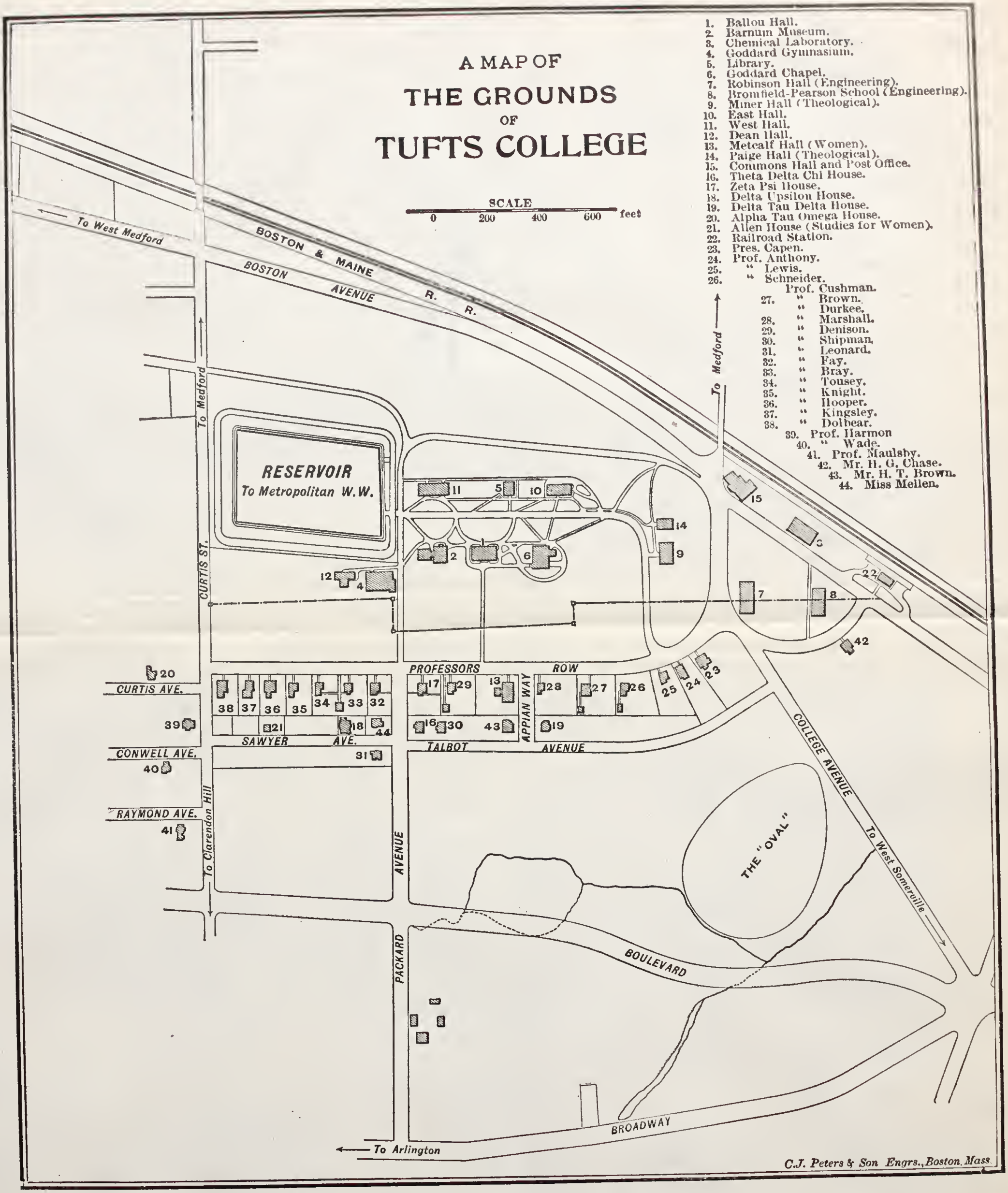

A MAP OF THE GROUNDS OF TUFTS COLLEGE

1. Ballou Hall.
2. Barnum Museum.
3. Chemical Laboratory.
4. Goddard Gymnasium.
5. Library.
6. Goddard Chapel.
7. Robinson Hall (Engineering).
8. Bromfield-Pearson School (Engineering).
9. Miner Hall (Theological).
10. East Hall.
11. West Hall.
12. Dean Hall.
13. Metcalf Hall (Women).
14. Paige Hall (Theological).
15. Commons Hall and Post Office.
16. Theta Delta Chi House.
17. Zeta Psi House.
18. Delta Upsilon House.
19. Delta Tau Delta House.
20. Alpha Tau Omega House.
21. Allen House (Studies for Women).
22. Railroad Station.
23. Pres. Capen.
24. Prof. Anthony.
25. " Lewis.
26. " Schneider.

Prof. Cushman.
27. " Brown.
" Durkee.
28. " Marshall.
29. " Denison.
30. " Shipman.
31. " Leonard.
32. " Fay.
33. " Bray.
34. " Tousey.
35. " Knight.
36. " Hooper.
37. " Kingsley.
38. " Dolbear.
39. Prof. Harmon
40. " Wade.
41. Prof. Maulsby.
42. Mr. H. G. Chase.
43. Mr. H. T. Brown.
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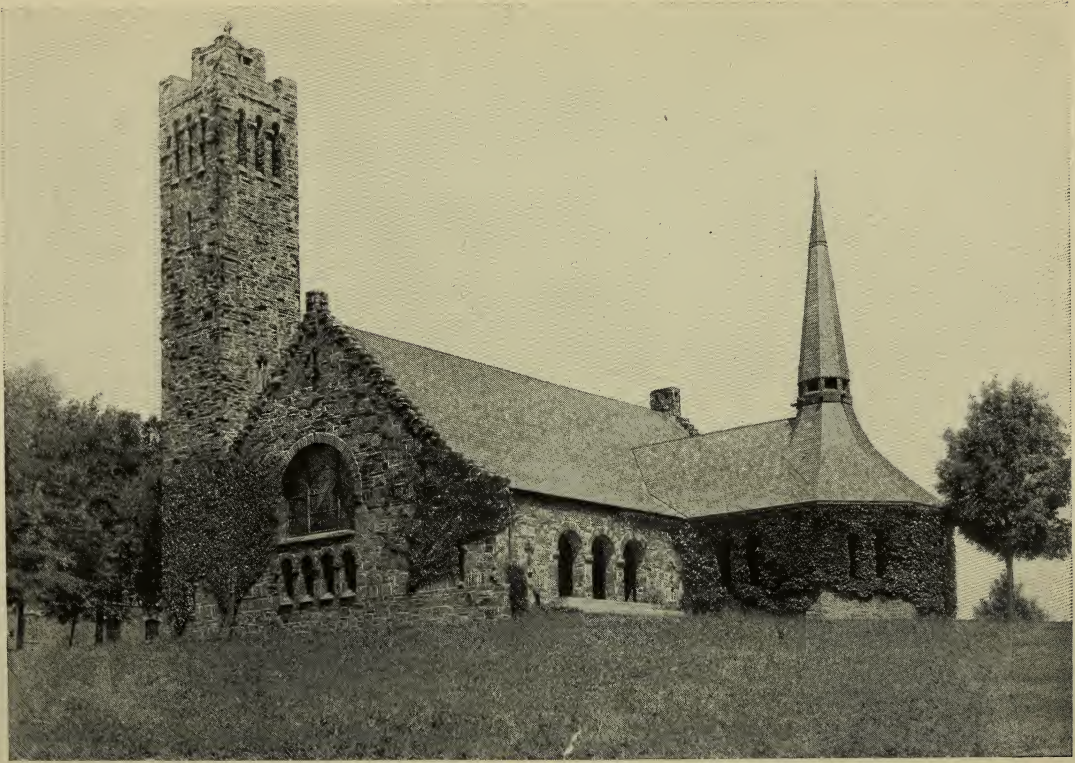

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OF

TUFTS COLLEGE

1899-1900

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Plan of the College Grounds, *Next to Back Cover.*

56852

Calendar.

1899.

SEPT.	21.	College year begins (all departments except the Medical School), Thursday morning.
SEPT.	23.	Regular College exercises begin.
SEPT.	24.	Russell Lecture, Sunday, 10.30 A.M.
NOV.	29.	Thanksgiving recess begins, Wednesday at 1 P.M.
DEC.	3.	Thanksgiving recess ends, Sunday evening.
DEC.	20.	Christmas recess begins, Wednesday at 1 P.M.

1900.

JAN.	3.	Christmas recess ends, Wednesday evening.
FEB.	10.	End of first half-year, Saturday. Plans of study for the second half-year must be reported before noon of this day.
FEB.	12.	Second half-year begins, Monday.
MARCH	31.	Spring recess begins, Saturday at 1 P.M.
APRIL	8.	Spring recess ends, Sunday evening.
MAY	18.	Prize Reading in the College of Letters, Friday.
MAY	29.	Prize Reading in the Divinity School, Tuesday.
JUNE	15.	Class Day, Friday.
JUNE	17.	Baccalaureate Sermon, Sunday, 4.30 P.M.
JUNE	20.	Forty-third Annual Commencement, Wednesday.

First Examinations for Admission to the College of Letters.

JUNE	21.	Algebra, 9 to 10.30 A.M. English, 10.30 A.M. to 12.30 P.M. Plane Geometry, 2 to 4 P.M. Physics, 4 to 5 P.M. Drawing, 4 to 6 P.M.
JUNE	22.	Elementary and Advanced Latin, 9 to 12 A.M. Advanced Mathematics, 9 to 11 A.M. Natural History (two subjects), 11 A.M. to 1 P.M. History, 2 to 4 P.M. Chemistry, 4 to 5 P.M.
JUNE	23.	Elementary and Advanced Greek, 9 to 12 A.M. Intermediate and Advanced German and French, 9 to 11 A.M. Elementary German and French, 11 A.M. to 12.30 P.M.

SUMMER VACATION, THIRTEEN WEEKS.

Second Examinations for Admission to the College of Letters.

SEPT. 18. Algebra, 9 to 10.30 A.M.
English, 10.30 A.M. to 12.30 P.M.
Plane Geometry, 2 to 4 P.M.
Physics, 4 to 5 P.M.
Drawing, 4 to 6 P.M.
SEPT. 19. Elementary and Advanced Latin, 9 to 12 A.M.
Advanced Mathematics, 9 to 11 A.M.
Natural History (two subjects), 11 A.M. to 1 P.M.
History, 2 to 4 P.M.
Chemistry, 4 to 5 P.M.
SEPT. 20. Elementary and Advanced Greek, 9 to 12 A.M.
Intermediate and Advanced German and French, 2.30 to 5 P.M.
Elementary German and French, 1 to 2.30 P.M.

SEPT. 19. Examination for Admission to the Divinity School in Miner Hall, beginning at 9 A.M.
SEPT. 20. College year begins, Thursday morning.
Registration of all students at Secretary's office.
Major departments and plans of study for the first half-year must be reported before noon of this day.
SEPT. 22. Regular College exercises begin.
SEPT. 23. Russell Lecture, Sunday, 10.30 A.M.
NOV. 28. Thanksgiving recess begins, Wednesday at 1 P.M.
DEC. 2. Thanksgiving recess ends, Sunday evening.
DEC. 19. Christmas recess begins, Wednesday evening.

1901.

JAN. 2. Christmas recess ends, Wednesday evening.
FEB. 2. End of first half-year, Saturday.
FEB. 4. Second half-year begins, Monday.

TUFTS COLLEGE is a railway station four miles from Boston, on the Southern division of the Boston & Maine Railroad. The post-office address is — TUFTS COLLEGE, MASS.

Historical Sketch.

Tufts College was established under a charter granted on the twenty-first day of April, 1852, by the General Court of Massachusetts. Under this charter, as later amended, the College is empowered "to confer such degrees as are usually conferred by colleges in New England." Its organization now comprises the College of Letters, the Divinity School, the Medical School, and the Dental School. The College of Letters gives the degrees of Bachelor of Arts, Bachelor of Philosophy, and, for special courses in science and engineering, Bachelor of Science; and the graduate degrees of Master of Arts, Doctor of Philosophy, Civil, Electrical, and Mechanical Engineer. The course in the Divinity School leads to the degree of Bachelor of Divinity; that in the Medical School to the degree of Doctor of Medicine; and that in the Dental School to the degree of Doctor of Dental Medicine.

The Foundation. — The movement resulting in the founding of the College was set on foot in 1847, through the efforts of the Rev. Thomas J. Sawyer, of New York, the Rev. Hosea Ballou, 2d, of Medford, and the Rev. Thomas Whittemore, of Cambridgeport. After much consideration the work of raising a fund of one hundred thousand dollars for a foundation was undertaken, under the direction of the Rev. Otis A. Skinner, of Boston. About sixty thousand dollars was obtained in money. Sylvanus Packard gave his bond for twenty thousand dollars additional, and Charles Tufts gave twenty acres of land on Walnut Hill, embracing the present site of the College. Mr. Tufts announced his intention of increasing his gift of land to more than one hundred acres, and thus became the largest benefactor of the young institution, which accordingly received his name. Mr. Packard was a Boston merchant, who from the beginning made the College a peculiar care, and bequeathed to it his entire fortune. Among other benefactors who may be numbered among the founders of the College were Oliver Dean, who gave it ninety thousand dollars, and Thomas A. Goddard, whose gifts, though unobtrusive, were constant, and whose widow continued the generosity of her husband, and at her death made a substantial bequest to the College. Dr. William J. Walker came soon after, with gifts and bequests amounting to nearly three hundred thousand dollars.

While the College, as may be seen, owed its beginning to the effort and the support of members of the Universalist denomination, it was provided by the Legislature in the charter that

> "No instructor in said college shall ever be required by the Trustees to profess any particular religious opinions as a test of office, and no student shall be refused admission to or denied any of the privileges, honors, or degrees of said college, on account of the religious opinions he may entertain."

This provision has always been interpreted by the Trustees and Faculty in its broadest sense. The non-sectarian character of the work of the College is amply shown by the membership of its Faculty and student body. The truth, and not the maintenance of any religious or political doctrine, has been the aim of its research and its instruction.

The College of Letters. — Students were first formally admitted in 1855. The only building at that time was the main College building, now known as Ballou Hall. The next building to be erected was a small brick dormitory, now the Library building. The large dormitory known as East Hall was the next addition to the group, and in 1872 West Hall was opened to students. It was ten years before building operations were renewed by the College. The original Faculty numbered five. The first class, of three members, was graduated in 1857.

At the outset, provision was made for a course of study leading to the degree of Bachelor of Arts. The only feature of its work peculiar to Tufts College in these years of its beginning was the attention given to the study of history. The first President of the College, the Rev. Hosea Ballou, 2d, D.D., was likewise Professor of History and of Intellectual Philosophy, and gave instruction in history remarkable alike for its quantity and quality, at a time when the study was hardly recognized in American colleges. Four hours a week for three years was the time assigned to this subject in the curriculum of Tufts College, until the death of President Ballou, in 1861, when, there being no one to take up the work, it dropped from the course.

Dr. Ballou was succeeded in the presidency by the Rev. Alonzo Ames Miner, D.D., LL.D., who was inaugurated in 1862, and continued in office until 1875, resigning in February of that year. In March, 1875, the Rev. Elmer Hewitt Capen, D.D., was elected to the presidency of the College, vacated by the resignation of President Miner, and he was inaugurated on the second day of June.

The Engineering Courses were begun in 1869 with a department of Civil Engineering. The great development of electrical science was promptly recognized, and a department of Electrical Engineering was opened to students in 1882, a professorship in the subject being established in 1890. This side of the College work had a very rapid development, and in 1894 the field was broadened by the addition of a course in Mechanical Engineering, and in 1898 by one in Chemical Engineering. In these courses an effort has always been made to give thorough practical training. The will of the late Henry B. Pearson, founding the Bromfield-Pearson School, and putting it into the hands of the Trustees of Tufts College to administer, provided a thoroughly equipped building for technical instruction, of great value in the drawing, pattern-making, machine, and forge work, so important to the engineer in any branch. The Bromfield-Pearson building was completed in the fall of 1894. Robinson Hall, now in process of erection, will give to the technical courses a modern building with every facility for their work. It is given in memory of the late Hon. Charles Robinson, sometime President of the Trustees, by his heirs.

In 1883 the late Phineas T. Barnum gave fifty-five thousand dollars for the establishment of the Barnum Museum of Natural

History, and by his last will he bequeathed forty thousand dollars more. The main Museum building was completed in 1884. The west wing, containing the new biological laboratories, was erected in 1894. The years 1882 and 1883 saw the completion of Goddard Chapel, a monument of architectural beauty, given by Mrs. Mary T. Goddard as a memorial of her husband, the first treasurer of the College. Goddard Gymnasium, a gift from the same source, was also completed in 1883. The gymnasium has this year been enlarged and transformed into what is practically a new building. Dean Hall, a new dormitory, made necessary by the growth of the College, was erected in 1887 from funds bequeathed by the late Oliver Dean. In the College year 1894–95 two new buildings were opened, in addition to the west wing of the Barnum Museum. These were the Chemical building and Commons Hall, containing students' rooms, a dining-hall, and the post-office.

The development of the College in its internal life has, however, been the notable fact of the last few years, of which the external changes have been the indications. Some unclassified students had always been in attendance at the College, and in 1866 the degree of Bachelor of Philosophy was offered to those who should pursue a prescribed course of two years, the object being to provide for those who had been prepared only in English subjects. This course was maintained until 1875, when it was changed to a course of four years. The requirements for admission were then made the same as for the regular course, except that Greek as a condition of entrance was omitted, and an amount of work in French or German, considerably less than its equivalent, was substituted. In 1891 a new course of study, leading to the degree of Bachelor of Arts, was offered for the first time, with an entrance requirement, believed to be fully the equivalent of the Greek, in two modern languages. This was one important step taken by the College toward the broadening of its opportunities, but it soon proved to be insufficient. There had been a steady growth for many years in the amount of work done, and in the number of departments of learning represented. Instead of five members of the corps of instruction, as at the opening of the College in 1855, the catalogue of 1893–94 showed a body of active instructors, exclusive of the Divinity and Medical Schools, numbering twenty-seven, and offering subjects aggregating one hundred and thirteen, divided among twenty-two departments, exclusive of the Engineering Courses proper. Two new departments had been instituted in 1892, in response to the tendencies of educational development,— those of Biology and History. In the fall of 1893 it seemed possible to take another step and to put into operation the present plan of work, which is believed to be an approach to a rational co-ordination and connection of the college and university systems. The beneficial results, in the growth of a more earnest and scholarly spirit, have already been felt. The same principle which governed this adjustment of the College curriculum has been applied to the new entrance requirements, first announced two years ago, and now in effect.

There were opened in 1895 courses of four years each in Biology, Chemistry, General Science, and Medical Preparatory work, leading to the Degree of Bachelor of Science, and accessible to graduates of all good high schools. These new courses open broad opportunities to graduates of schools, not fitting especially for college, to secure a thorough college training. Bachelors of Science and of Philosophy may, if they desire, go on to the attainment of the degree of Bachelor of Arts.

In response to a pressing demand the College was, in the summer of 1892, opened to women on the same terms as to men. Nine women registered in all departments in that year. In the fall of 1894 there was opened for the accommodation of women students Metcalf Hall, the gift of Mr. Albert Metcalf, of Newton.

The Professional Schools. — The will of Mr. Packard required that a professor of Christian Theology should be maintained from the income of funds bequeathed by him. The Rev. Thomas J. Sawyer, D.D., was elected Packard Professor in 1869. This was the beginning of the Divinity School. In 1882 the school had developed so that its Faculty received a definite organization and Dr. Sawyer became the first Dean, retaining the office until his retirement as Packard Professor Emeritus in 1892. He was succeeded by the present Dean, the Rev. Charles H. Leonard, D.D. From the erection of West Hall until the completion of the separate buildings of the school, the western side of West Hall was occupied by the Divinity School. In 1892, by the gift of Ex-President Miner, the school was provided with a convenient and handsome building, Miner Hall, containing the library, class rooms, chapel, and reception-room; and at the same time, largely through the efforts of the Dean, the money was obtained to build Paige Hall, a dormitory for students of the Divinity School.

In 1895 Tufts College met what seemed to be a need of the community by opening the Tufts Medical School. The growth of the school in efficiency and numbers justified its institution. Five classes have graduated from it. The course is four years in length, and, as in other departments of the College, women stand upon the same terms as men.

The Medical School finds its complement this year in the Tufts Dental School, organized by the absorption of the Boston Dental College, which was incorporated in 1868 and has a numerous body of alumni. The equipment, funds, and good will of this school passed to Tufts College.

Administration.— The control of the College is vested by the charter in a self-perpetuating body of Trustees, not to exceed thirty in number. As the College has matured the number of its alumni upon the Board of Trustees has steadily increased. To give the alumni as a whole a direct representation in the administration, a Board of Overseers has been instituted and enters upon its work this year. The several Faculties are appointed by the Trustees, with the approval of the Overseers.

THE COLLEGE CHARTER.

SECTION 1. B. B. Mussey, Timothy Cotting, Richard Frothingham, Jr., their associates and successors, are hereby constituted a body corporate by the name of the Trustees of Tufts College, in Medford, and they and their successors, and such as shall be duly elected members of said corporation, shall be and remain a body corporate by that name forever. And for the orderly conducting of the business of said corporation, the said Trustees shall have power and authority, from time to time, as occasion may require, to elect a President, Vice-President, Secretary, and Treasurer, and such other officers of said corporation as may be found necessary, and to declare the duties and tenures of their respective offices; and also to remove any Trustee from the same corporation, when, in their judgment, he shall be rendered incapable, by age or otherwise, of discharging the duties of his office, or shall neglect or refuse to perform the same; and also, from time to time, to elect new members of the said corporation; provided, nevertheless, that the number of members shall never be greater than thirty.

SEC. 2. The said corporation shall have full power and authority to determine at what times and places their meetings shall be holden, and the manner of notifying the Trustees to convene at such meetings, and also, from time to time, to elect a President of said College, and such professors, tutors, instructors, and other officers of the said College as they shall judge most for the interest thereof, and to determine the duties, salaries, emoluments, responsibilities, and tenures of their several offices. And the said corporation are further empowered to purchase or erect, and keep in repair, such houses and other buildings as they shall judge necessary for the said College; and also to make and ordain, as occasion may require, reasonable rules, orders, and by-laws, not repugnant to the Constitution and Laws of this Commonwealth, with reasonable penalties, for the good government of the said College, and for the regulation of their own body, and also to determine and regulate the course of instruction in said College, and to confer such degrees as are usually conferred by colleges in New England; provided, nevertheless, that no corporate business shall be transacted at any meeting unless one-third, at least, of the Trustees are present.

SEC. 3. The said corporation may have a common seal, which they may alter or renew at their pleasure, and all deeds sealed with the seal of said corporation, and signed by their order, shall, when made in their corporate name, be considered in law as the deeds of said corporation; and said corporation may sue and be sued in all actions, real, personal, or mixed; and may prosecute the same to final judgment and execution by the name of the Trustees of Tufts College; and said corporation shall be capable of taking and holding in fee simple, or any less estate, by gift, grant, bequest, devise, or otherwise, any lands, tenements, or other estate, real or personal; provided, that the clear annual income of the same shall not exceed two hundred thousand dollars.

SEC. 4. The clear rents and profits of all the estate, real and personal, of which the said corporation shall be seized and possessed, shall be appropriated to the endowment of said College in such manner as shall most effectually promote virtue and piety, and learning in such of the languages, and of the liberal and useful arts and sciences, as shall be recommended from time to time by the said corporation, they conforming to the will of any donor or donors in the application of any estate which may be given, devised, or bequeathed, for any particular object connected with the College.

Sec. 5. No instructor in said College shall ever be required by the Trustees to profess any particular religious opinions as a test of office, and no student shall be refused admission to or denied any of the privileges, honors, or degrees of said College on account of the religious opinions he may entertain.

Sec. 6. The Legislature of this Commonwealth may grant any further powers to, or alter, limit, annul, or restrain, any of the powers vested by this act in the said corporation, as shall be found necessary to promote the best interests of the said College, and more especially may appoint and establish overseers or visitors of the said College, with all necessary powers for the better aid, preservation, and government thereof.

Sec. 7. The granting of this Charter shall never be considered as any pledge on the part of the Government that pecuniary aid shall hereafter be granted to the College.

THE CONSTITUTION OF THE BOARD OF OVERSEERS.

Section 1. There shall be, and hereby is established, a Board of Overseers of Tufts College.

This Board shall consist of the President of the College, *ex officio*, and sixteen other persons, who shall have received a degree from the College in course not less than ten years previous to their election, provided that not less than twelve members of said Board at any time shall be persons who have taken the degree of A.B., S.B., or Ph.B., in course from Tufts College.

No officer of instruction in Tufts College shall be eligible to election to the Board of Overseers, and if an Overseer be appointed to such office of instruction, his position as Overseer shall be thereby vacated.

No Trustee of Tufts College shall be eligible to election to the Board of Overseers, and any member of the Board of Overseers becoming a Trustee of Tufts College shall thereby cease to be an Overseer.

No person shall be eligible for election to the Board of Overseers for more than two successive full terms.

Persons elected to the Board of Overseers must qualify by accepting such election in writing within three months from receipt of notice thereof.

Sec. 2. All persons who have received from the College a degree in regular course, or an honorary degree, shall be entitled to vote for

Overseers, provided that no person who has received any degree in regular course shall be entitled by virtue thereof to vote for Overseers before the fifth annual election following receipt of such degree.

SEC. 3. For the purpose of the first election of Overseers a Committee of ten shall be appointed, five chosen by the Trustees of the College and five chosen by the Association of the Alumni of Tufts College or its Executive Committee. This Committee shall nominate not less than thirty-two candidates, and ballots prepared on the so-called Australian system shall be sent by mail not later than August 1, 1899, to the last known address of every person entitled to vote under the conditions hereinbefore set forth. Such persons may send their ballots, duly signed, by mail to some person designated by said Nominating Committee, so that they may be received at least not later than September 9, 1899, and the sixteen candidates having the largest number of votes shall be declared elected, provided that the provisions of Section 1, regarding eligibility, must not be infringed upon.

The said Nominating Committee shall receive and count the ballots and ascertain the result of the election. They shall thereupon make report of their proceedings to the Trustees, and shall cause the names of the persons elected to be posted at the College the first day of the Fall Term. The Secretary of the Trustees shall notify the members-elect of their election and of the first meeting, to be called at such time and place as the President of the College shall designate.

At the first meeting after the first election the elected members of the Board shall be divided by lot into four classes, to hold office one, two, three, and four years, respectively. The term of office of Overseers subsequently elected shall be four years, provided that elections to fill vacancies shall be for the unexpired portion of the term.

After the first election such vacancies as occur, either by expiration of term or otherwise, shall be filled by an annual election to be held under such regulations as the Overseers may make, subject, however, to the provisions as to eligibility and right of suffrage herein contained, and provided that voting shall be by mail and according to the so-called Australian system of balloting.

SEC. 4. The Trustees of Tufts College shall submit to the Overseers for approval all nominations for officers of instruction in all departments of the College, whether permanent or temporary, of or above the grade of instructor, together with all votes providing for changes in or additions to departments of instruction. Upon notice of such action as hereinbefore specified, the Overseers may approve or disapprove the same, and notice of the action of the Overseers shall be communicated to the Trustees forthwith, provided that failure to act promptly upon any matter submitted to the Overseers shall be taken as approval.

The Overseers shall have power to recommend to the Trustees such action in any matter of college management or government, not purely financial, as may seem to them advisable, including the power to nominate officers of instruction and government.

SEC. 5. The Overseers shall elect a President and a Secretary. It shall be the duty of the Secretary to notify the Trustees of all action taken upon all matters submitted to the Overseers by the Trustees.

The Overseers shall hold stated meetings at such time as they may by general rules determine. The Executive Committee of the Trustees may order special meetings at any time.

The Overseers may adopt regulations and by-laws for the transaction of their business, not inconsistent herewith, and may declare a vacancy in their Board whenever in their judgment sufficient cause exists. No pecuniary liability shall be incurred by the Overseers except by the authority of the Executive Committee of the Trustees.

THE ADMINISTRATION OF THE COLLEGE.

The Trustees.

President.

HENRY B. METCALF.

Vice-President.

HOSEA M. KNOWLTON.

Secretary.

HENRY W. RUGG, Providence, R. I.

Treasurer.

NEWTON TALBOT, 30 West Street, Boston.

Executive Committee.

FREDERIC W. HAMILTON, *Chairman.*

ELMER H. CAPEN.
WILLIAM H. SHERMAN.
BYRON GROCE.
ALBERT METCALF.
THOMAS H. ARMSTRONG.
HENRY B. METCALF.
HENRY D. WILLIAMS.
SUMNER ROBINSON.

Trustees.

TIMOTHY T. SAWYER,	Boston.
NEWTON TALBOT,	Boston.
ELMER H. CAPEN, A.M., D.D., LL.D.,	Somerville.
CHARLES S. FOBES, A.M.,	Portland, Me.
HOSEA M. KNOWLTON, A.B., LL.D.,	New Bedford.
THOMAS H. ARMSTRONG, A.M.,	Waltham.
HENRY W. RUGG, D.D.,	Providence, R. I.
J. COLEMAN ADAMS, A.M., D.D.,	Brooklyn, N.Y.
BYRON GROCE, A.M.,	Boston.
ARTHUR E. DENISON, A.B.,	Cambridge.
HENRY D. WILLIAMS, A.M.,	Boston.
WILLIAM OSCAR CORNELL,	Providence, R. I.
HOSEA W. PARKER, A.M.,	Claremont, N. H.
WALTER E. PARKER,	Lawrence.
HENRY B. METCALF, A.M.,	Pawtucket, R. I.

WILLIAM W. SPAULDING, A.B.,	Haverhill.
DAVID CUMMINGS,	Somerville.
FREDERICK S. PEARSON, A.M.M.,	New York, N.Y.
CHARLES E. MORRISON,	Boston.
SUMNER ROBINSON, A.M., LL.B.,	Newton.
WILLIAM H. SHERMAN,	Boston.
ALBERT METCALF,	Newton.
JOHN W. HAMMOND, A.B., LL.D.,	Cambridge.
FREDERIC W. HAMILTON, A.M., D.D.,	Boston.
LORRIN L. DAME, A.M., S.D.,	Medford.
J. FRANK WELLINGTON,	Somerville.
WILLIAM E. GIBBS, A.B., D.D.,	Lawrence.
ARTHUR E. MASON,	Boston.
ROBERT R. ANDREWS, D.D.S.,	Cambridge.

The Overseers.

President.

WALTER P. BECKWITH, Ph.D.

Secretary.

CHARLES W. PARMENTER, Ph.D.,
80 Upland Road, North Cambridge.

Term expires in 1900.

WILLIAM B. FRENCH, A.B.
FRANK O. MELCHER, A.M.B.
FRANCIS B. HARRINGTON, A.B.,M.D.
CHARLES W. PARMENTER, Ph.D.

Term expires in 1901.

WALTER P. BECKWITH, Ph.D.
MINTON WARREN, Ph.D., LL.D.
HENRY BLANCHARD, A.M., D.D.
WILLIAM D. T. TREFRY, A.B.

Term expires in 1902.

EDWARD H. CLEMENT, A.M.
ARTHUR W. PEIRCE, Ph.D.
SELDEN CONNOR, LL.D.
SAMUEL W. MENDUM, A.B.

Term expires in 1903.

CHARLES H. EATON, A.M., D.D.
ROLAND HAMMOND, M.D.
EDWIN GINN, A.M.
FRANK M. HAWES, A.M.

BOARDS OF VISITORS.

[Appointed by the Overseers.]

To the College of Letters.

MINTON WARREN, Ph.D., LL.D.
SELDEN CONNOR, A.B., LL.D.
FRANK O. MELCHER, A.M.B.
W. H. SMALL, A.M.
SARA A. HAMLIN.

To the Divinity School.

HENRY BLANCHARD, A.M., D.D.
CHARLES H. EATON, A.M., D.D.
WALTER P. BECKWITH, Ph.D.
FREDERICK DILLINGHAM, A.B., B.D.
FREDERICK A. BISBEE, D.D.

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FRANK B. HARRINGTON, A.B., M.D.
CHARLES W. PARMENTER, Ph.D.
FRANK M. HAWES, A.M.
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BYRON L. DWINELL, M.D.

To the Dental School.

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WILLIAM D. T. TREFRY, A.B.
SAMUEL W. MENDUM, A.B.
EDWIN E. DAVIS, A.B., D.D.S.

Officers of Instruction and Government.*

ELMER H. CAPEN, A.M., D.D., LL.D., 8 Professors Row.
President, *and Professor of Moral Philosophy and Political Economy.*

JOHN P. MARSHALL, A.M., 48 Professors Row.
Pearson Professor of Geology and Mineralogy, Emeritus.

CHARLES H. LEONARD, D.D., 120 Packard Avenue.
Goddard Professor of Homiletics and Pastoral Theology, and Dean of the Divinity School.

MOSES T. BROWN, A.M., Sandusky, Ohio.
Professor of Oratory, Emeritus.

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Professor of Greek.

BENJAMIN G. BROWN, A.M., 38 Professors Row.
Walker Professor of Mathematics.

WILLIAM R. SHIPMAN, A.M.,D.D., LL.D., Talbot Avenue.
Goldthwaite Professor of Rhetoric, and Professor of Logic.

SAMUEL G. WEBBER, A.B., M.D., 146 Marlboro Street, Boston.
Professor of Neurology.

CHARLES D. BRAY, C.E., A.M., 98 Professors Row.
Professor of Civil and Mechanical Engineering.

JOHN L. HILDRETH, A.B., M.D., 14 Garden St., Cambridge.
Professor of Clinical Medicine.

HENRY W. DUDLEY, M.D., Abington.
Professor of Pathology, Emeritus.

CHARLES P. THAYER, A.M., M.D., 74 Boylston Street, Boston.
Professor of General, Descriptive, and Surgical Anatomy, and Secretary of the Medical and Dental Schools.

AMOS E. DOLBEAR, M.E., Ph.D., 134 Professors Row.
Professor of Physics and Astronomy.

GEORGE M. HARMON, A.M., B.D., 114 Curtis Street.
Professor of Biblical Theology.

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* The members of the Faculty, with the exception of the President, are arranged in this list in the order of the time at which their first academic degrees were taken, or the time of their studies, where an academic degree was not taken in course.

ERNEST W. CUSHING, A.B., M.D., LL.D.,
168 Newbury Street, Boston.
Professor of Abdominal Surgery and Gynæcology.

CHARLES E. FAY, A.M., 92 Professors Row.
Wade Professor of Modern Languages.

WILLIAM G. TOUSEY, A.M., B.D., 106 Professors Row.
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GEORGE T. KNIGHT, A.M., D.D., 114 Professors Row.
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WALTER CHANNING, M.D., Brookline.
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Professor of Materia Medica and Therapeutics.

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Instructor in Clinical Medicine.

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Professor of Technical Drawing, and Dean of the Department of Engineering and of the Bromfield-Pearson School.

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Professor of Ophthalmology.

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Instructor in Gynæcology.

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Instructor in Bandaging and Apparatus.

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Instructor in Orthodontia.

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WILLIAM R. WHITEHORNE, A.M., 14 Elmwood St., Somerville.
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Assistant in English.

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Instructor in Physical Training for Women.

Medical School.

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Lecturer on Rectal Diseases.

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HENRY J. BARNES, M.D., 429 Beacon Street, Boston.
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Assistant Demonstrator of Anatomy.

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Assistant in Materia Medica and Therapeutics.

Dental School.

WALTER I. BRIGHAM, D.D.S., South Framingham.
Lecturer on Operative Dentistry.

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J. ROSS HARDY, D.D.S.,
EDWARD A. QUINN, D.D.S.,
Instructors in Mechanical Dentistry.

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Instructors in Clinical Dentistry.

Divinity School.

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WILLIAM H. DEARBORN, South Weare, N. H.
FRANK O. HALL, B.D., Cambridge.
RICHARD EDDY, D.D., Chatham.
HENRY B. METCALF, A.M., Pawtucket, R. I.
Lecturers.

OTHER OFFICERS.

HERBERT T. BROWN, Tufts College.
Bursar.

HARRY GRAY CHASE, B.E.E., 16 Professors Row.
Registrar.

HELEN L. MELLEN, 126 Packard Avenue.
Librarian.

ETHEL MUNROE HAYES, A. B., 252 Medford St., Somerville.
Assistant Librarian.

KATHERINE L. STEBBINS, A.B.,
Secretary's Clerk. 30 Day Street, West Somerville.

CHARLES C. STROUD, A.B., M.D., Dean Hall, 1.
Director of the Gymnasium.

EDWIN H. BENNETT,
Superintendent of Buildings.

Proctors.

FRANCIS D. WILSON, West Hall, West.
SAMUEL P. CAPEN, West Hall, East.
VIRGIL L. LEIGHTON, Dean Hall.
CHARLES C. STROUD, East Hall.

Russell Lecturer, 1900.

DWIGHT M. HODGE, D.D., Franklin.

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Board of Editors.

THE PRESIDENT, *Ex-Officio.*

Professor Dolbear.
Professor Knight.
Professor Kingsley.

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Professor of Greek.
BENJAMIN G. BROWN, A.M.
Walker Professor of Mathematics.
WILLIAM R. SHIPMAN, D.D., LL.D.*
Goldthwaite Professor of Rhetoric, and Professor of Logic.
CHARLES D. BRAY, C.E., A.M.
Professor of Civil and Mechanical Engineering.
AMOS E. DOLBEAR, M.E., PH.D.
Professor of Physics and Astronomy.
CHARLES E. FAY, A.M.
Wade Professor of Modern Languages.
J. STERLING KINGSLEY, S.D.
Professor of Biology.
WILLIAM L. HOOPER, A.M., PH.D.
Professor of Electrical Engineering.
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Professor of Chemistry.
GARDNER C. ANTHONY, A.M.
Professor of Technical Drawing.
DAVID L. MAULSBY, A.M.
Professor of English Literature and Oratory.
LEO R. LEWIS, A.M.
Professor of the History and Theory of Music.
FRANK W. DURKEE, A.M.
Professor of Inorganic Chemistry.
WILLIAM K. DENISON, A.M.
Professor of the Latin Language and Literature.
CHARLES ST. CLAIR WADE, A.M.
Professor of the Greek Language and Literature.

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*Absent on leave.

HERBERT E. CUSHMAN, A.M., PH.D.
Professor of Philosophy.

HENRY C. METCALF, A.M., PH.D.
Professor of Political Science.

EDWIN A. START, A.M.
Assistant Professor of History.

THOMAS WHITTEMORE, A.B.
Assistant Professor of English.

FRANK BERRY SANBORN, C.E., M.S.
Instructor in Civil Engineering.

CHARLES H. CHASE, S.B.
Instructor in Shopwork.

HARRY GRAY CHASE, B.E.E.
Walker Special Instructor in Mathematics.

FRANK G. WREN, A.M.
Assistant Professor of Mathematics.

CHARLES C. STROUD, A.B., M.D.
Instructor in Physical Training.

VIRGIL L. LEIGHTON, A.M., PH.D.
Instructor in Organic Chemistry.

SAMUEL C. EARLE, A.M.
Instructor in Modern Languages in Engineering Department and Assistant in English Literature.

LUDWIG DEMETER.
Instructor in Modern Languages.

OTHER INSTRUCTORS.

WILLIAM R. WHITEHORNE, A.M.
Assistant in Qualitative Analysis.

LIZZIE MAUD CARVILL.
Instructor in Physical Training for Women.

WALTER F. THOMPSON, A.B.
Assistant in English.

STANDING COMMITTEES OF THE FACULTY.

ADMISSIONS: Professor Maulsby, *Chairman;* the examiners and the Secretary of the Faculty.

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SCHOLARSHIPS AND AIDS: President Capen, *Chairman;* Professors Shipman and Brown.

PROGRAM: Assistant Professor Start, *Chairman;* Professors Hooper and Brown.

CATALOGUE: Assistant Professor Start, *Chairman;* Professors Hooper and Maulsby.

LIBRARY: Professor Shipman, *Chairman;* Professors Fay, Hooper, and Knight, and Assistant Professor Start.

MEMBERS ON THE PART OF THE FACULTY OF THE ADVISORY COMMITTEE ON ATHLETICS: Professor Harmon (from the Divinity School), *Chairman;* Professor Durkee and Dr. Stroud.

GLEE CLUB: Professor Lewis, *Chairman;* Professor Knight (from the Divinity School) and Assistant Professor Denison.

FRESHMAN PLANS OF STUDY: Professor Brown, *Chairman;* Professor Lewis and Assistant Professors Wade and Denison.

BOOKS AND SUPPLIES: Professor Lewis, *Chairman;* Professors Durkee and Anthony, and Assistant Professor Wren.

Requirements for Admission.

Two sets of entrance requirements are for the present open to candidates for admission to the College, the Faculty having decided to continue until further notice the option offered in 1898.

THE NEW REQUIREMENTS.

Every candidate for admission to the College of Letters is required to pass examinations in two groups of subjects, known respectively as the Primary and the Secondary Group. The Primary Group includes certain prescribed subjects in different fields, an elementary training in which is regarded as fundamental for college study. In the Secondary Group a range of options, recognizing the equivalence of different preparatory studies when properly pursued, is presented. This permits the candidate to choose the more advanced subjects to be offered as evidence of capacity, in accordance with the course of study pursued in the preparatory school, and with that which he proposes to pursue in college.

The requirements presuppose a secondary school course of four years of systematic study, in which at least eighteen school periods a week are given to instruction in subjects to be offered as a part of the preparation for college. On this basis the *entrance unit* is taken as representing approximately three recitation periods a week for one year, the full requirement being, therefore, twenty-four entrance units. The time spent is not, however, regarded as an exact measure of the quantity, or range of work, and the entrance unit is held as an average measure.

No person will be admitted to regular standing as a candidate for a degree who has conditions amounting to more than *three entrance units* in the Primary Group, or to more than *six* in both groups, and of these not more than one unit may be in any one primary subject, or in the advanced foreign language offered; but candidates who have passed the requirements of the Primary Group with conditions not exceeding *three entrance units*, and have otherwise complied with the requirements governing the admission of special students, may be admitted as special students, and allowed to take such work in the College as they may be qualified to carry on. These students may, when the College offers subjects covering the ground of their deficiencies, make up such deficiencies by taking the corresponding subject in the College, and so ultimately attain regular standing; but work so taken to fulfil entrance requirements will in no case be counted as a part of the College requirements for a degree.

The values in entrance units affixed to each subject in the following lists of the two groups will enable the candidate to make up a schedule counting the required number of units.

Candidates may, at the discretion of the Committee on Admissions, receive credit of one or more entrance units for additional time spent on accepted subjects. Partial credit in any subject may be given at the discretion of the examiner, but all such credit will be conditioned upon the ultimate completion of the requirement by college work in the same subject, and deficiencies in any subject cannot be offset by credit for preparation based upon less than the minimum amount of work called for in another subject.

Primary Group.*

All candidates for admission to the College are required to pass satisfactory examinations in the following subjects, counting an aggregate of twelve entrance units: —

I. Elementary English. *Three entrance units.*

NOTE. — No candidate will be accepted in English whose work is notably defective in point of spelling, punctuation, syntax, idiom, or division into paragraphs.

1. *Reading and Practice.* — A certain number of books will be set for reading. The candidate will be required to present evidence of a general knowledge of the subject-matter, and to answer simple questions on the lives of the authors. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number — perhaps ten or fifteen — set before him in the examination paper. The treatment of these topics is designed to test the candidate's power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of a part or the whole of this test, the candidate may be allowed to present an exercise book, properly certified by his instructor, containing compositions or other written work done in connection with the reading of the books.

The books set for this part of the examination will be: —

1900. — Dryden's Palamon and Arcite; Pope's Iliad, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in The Spectator; Goldsmith's Vicar of Wakefield; Scott's Ivanhoe; De Quincey's Flight of a Tartar Tribe; Cooper's Last of the Mohicans; Tennyson's Princess; Lowell's Vision of Sir Launfal.

1901. — George Eliot's Silas Marner; Pope's Iliad, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in The Spectator; Goldsmith's Vicar of Wakefield; Scott's Ivanhoe; Shakespeare's Merchant of Venice; Cooper's Last of the Mohicans; Tennyson's Princess; Coleridge's Rime of the Ancient Mariner.

1902. — George Eliot's Silas Marner; Pope's Iliad, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in The Spectator; Goldsmith's Vicar of Wakefield; Scott's Ivanhoe; Shakespeare's Merchant of Venice; Cooper's Last of the Mohicans; Tennyson's Princess; Coleridge's Rime of the Ancient Mariner.

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*A tabulated summary of all the requirements will be found on page 44.

2. *Study and Practice.*— This part of the examination presupposes the more careful study of each of the works named below. The examination will be upon subject-matter, form, and structure; and will also test the candidate's ability to express his knowledge with clearness and accuracy. The books set for this part of the examination will be: —

1900.— Shakespeare's Macbeth; Milton's Paradise Lost, Books I and II; Burke's Speech on Conciliation with America; Macaulay's Essays on Addison and Milton.

1901.— Shakespeare's Macbeth; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essays on Addison and Milton.

1902.— Shakespeare's Macbeth; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essays on Addison and Milton.

II. One of the Following Languages: *Three entrance units.*

1. ELEMENTARY GERMAN.

The elementary examination will be adapted to the proficiency of those who have studied German in a systematic course of at least four periods a week for *two* years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of ordinary German. In preparation for this examination candidates will be expected to have read, in addition to not less than one hundred and fifty duodecimo pages of simple German, chiefly narrative prose, at least two hundred pages of classical and contemporary prose and verse, to be selected from such works as the following: Riehl, *Kulturgeschichtliche Novellen;* Freytag, *Bilder aus der Deutschen Vergangenheit*, especially *Aus dem Mittelalter* and *Aus dem Jahrhundert des groszen Krieges;* Kohlrausch, *Das Jahr* 1813; Schiller, *Der Dreiszigjährige Krieg*, *Wilhelm Tell*, *Maria Stuart*, *Die Jungfrau von Orleans;* Goethe, *Hermann und Dorothea*, *Egmont*, *Iphigenie;* Lessing, *Minna von Barnhelm.* At least one-half of the amount read should be nineteenth-century prose. It is important that all the translation should be done into clear and idiomatic English.

(*b*) The translation into German of a passage of simple English prose.

A less extended knowledge of syntax than for advanced German (see Secondary Group) will be presupposed in the selection of the matter for translation.

2. ELEMENTARY FRENCH.

The elementary examination will be adapted to the proficiency of those who have studied French in a systematic course of at least four periods a week for *two* years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of ordinary French. The passages set for translation will be suited to candidates who have read not less than five hundred duodecimo pages of classical and contemporary prose and verse, from the writings of at least five standard authors. It is important that all the translation should be done into clear and idiomatic English.

(*b*) The translation into French of a passage of easy English.

> A less extended knowledge of syntax than for Advanced French (see Secondary Group) will be presupposed in the selection of matter for translation.

3. ELEMENTARY LATIN.

The elementary examination will be suited to the attainment of those who have studied Latin systematically for at least four periods a week for two years. It will consist of two parts, which cannot be taken separately: —

(*a*) The translation at sight into idiomatic English of simple Latin prose, with questions on the ordinary forms and constructions of the language. Candidates will be expected to have read Cæsar, De Bello Gallico I–III, and in addition about twenty pages of Teubner text (*e.g.*, Cæsar, De Bello Gallico, IV, or seven hundred and fifty lines of Ovid, or an equivalent).

(*b*) The translation into Latin of easy sentences, involving only familiar words and idioms.

4. ELEMENTARY GREEK.

The examination will be adapted to the proficiency of those who have studied Greek in a systematic course of at least four periods a week for two years. It may consist of two parts, which cannot be taken separately: —

(*a*) The translation at sight of passages of simple Attic prose.

(*b*) A thorough examination on Book II of Xenophon's Anabasis (about thirty pages, Teubner text), directed to testing the candidate's mastery of the ordinary forms, constructions, and idioms of the language; the test to consist, in part, of writing simple Attic prose, involving the use of such words, constructions, and idioms only as occur in the prescribed portion of Xenophon.

Before taking the elementary examination the candidate should have read, in addition to the usual grammar work, at least four books of Xenophon's Anabasis, or an equivalent.

III. Elementary History. *Three entrance units.*

Two of the following: —

1. The History of Greece to the death of Alexander, with due reference to Greek life, literature, and art.

2. The History of Rome to the accession of Commodus, with due reference to Roman literature and government.

3. The History of England, with due reference to English social and political development.

4. American History, with the elements of Civil Government.

For preparation in each of these subjects the equivalent of one year's work, of not less than three periods a week, is necessary. The examination in each case will require comparison and judgment on the part of the candidate, and not merely the use of memory. The use of at least one good text-book of not less than three hundred pages, collateral reading aggregating not less than five hundred pages, and practice in written work, will be presumed. In addition to the examination, the presentation of written work done in the secondary school and certified by the teacher will be an important part of the evidence of proficiency required by the College. This written work should be presented, when the candidate appears for examination, in the form of a note-book or bound collection of notes, of not less than fifty written pages in each subject offered. Such written work must include practice in some of the following: —

(*a*) Notes and digests of the pupil's reading outside the text-books.

(*b*) Written recitations, requiring the use of judgment and the application of elementary principles.

(*c*) Written parallels between historical characters or periods.

(*d*) Brief studies of topics limited in scope, prepared outside the class-room, and including the use of contemporary material.

(*e*) Historical maps or charts, showing movements of exploration, migration, or conquest, territorial changes, or social phenomena.

IV. Elementary Mathematics. *Three entrance units.*

A knowledge of the metric system, and ability to perform accurately the ordinary processes of arithmetic, are presumed. The examination will include: —

(*a*) Algebra, through quadratic equations, including radical quantities, together with proportion, arithmetical and geometrical progression, and the binomial theorem for positive integral exponents; and

(*b*) Plane Geometry, including the solution of simple original exercises and numerical problems.

Secondary Group.

Bachelors of Arts.*— Every candidate for admission to regular standing in the courses leading to the degree of Bachelor of Arts is required to pass in a satisfactory manner examinations in subjects chosen from this group, aggregating twelve entrance units, including an advanced requirement in at least one foreign language other than the elementary language offered in the Primary Group.

Special Students.— Candidates for admission as special students must comply with the regular requirements of the Primary Group, and must also take such examinations as may be required by the instructor of the major department to which they seek admission. These requirements may be waived, by special vote of the Faculty, in the case of students seeking instruction in a limited range of subjects bearing directly upon the work of a chosen profession.

The subjects and their values in entrance units are as follows: —

I. **Advanced English.** *One entrance unit.*

One of the following: —

1. A detailed study of a single period of English literature and of not fewer than three authors belonging to it.

2. Old English (Anglo-Saxon): chiefly simple prose and grammar

3. Chaucer: Prologue, Knightes Tale, and Nonne Prestes Tale, including vocabulary, inflection, and prosody.

II. **Elementary German** (Primary Group, II, 1), when not offered in the Primary Group. *Three entrance units.*

III. **Elementary French** (Primary Group, II, 2), when not offered in the Primary Group. *Three entrance units.*

IV. **Elementary Latin** (Primary Group, II, 3), when not offered in the Primary Group. *Three entrance units.*

V. **Elementary Greek** (Primary Group, II, 4), when not offered in the Primary Group. *Three entrance units.*

VI. **Advanced German.** *Four† entrance units.*

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* The announcement of requirements in the Secondary Group, for candidates for the degree of Bachelor of Science, is deferred.

† An advanced foreign language includes the corresponding elementary, and the credit therefor.

The advanced examination will be adapted to the proficiency of those who have studied German in a systematic course of at least four periods a week for *three* years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of standard German.

In preparation for this examination candidates will be expected to have read, in addition to not less than one hundred and fifty duodecimo pages of simple German, chiefly narrative prose, at least six hundred pages of classical and contemporary prose and verse, to be selected from such works as those enumerated in Primary Group, II, 1, Elementary German (*a*). At least one-half of the amount read should be nineteenth-century prose.

(*b*) The translation into German of a passage of easy English prose.

In preparation for this examination candidates will be expected to have acquired a thorough knowledge of accidence, the elements of word-formation, and the principal uses of prepositions and conjunctions; the essentials of syntax, especially the uses of modal auxiliaries and the subjunctive and infinitive modes. Proficiency may also be tested by direct questioning.

It is recommended that the candidate acquire the ability to follow a recitation conducted in German and to answer in that language questions asked by the instructor.

VII. Advanced French. *Four* entrance units.*

The advanced examination will be adapted to the proficiency of those who have studied French in a systematic course of at least four periods a week for three years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of standard French.

The passages set for translation will be suited to candidates who have read not less than one thousand duodecimo pages of classical and contemporary prose and verse, from the writings of at least five standard authors.

(*b*) The translation into French of a passage of English prose.

In preparation for this examination candidates will be expected to have acquired a thorough knowledge of accidence and a familiarity with the essentials of French syntax, especially the uses of modes and tenses, and also with the commoner idiomatic phrases. Proficiency may also be tested by direct questioning.

Careful attention should be paid to pronunciation and to the use of spoken French, that the candidate may at least acquire the ability to follow a recitation conducted in the language and to answer questions asked by the instructor.

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*An advanced foreign language includes the corresponding elementary, and the credit therefor.

VIII. Advanced Latin. *Six* entrance units.*

The advanced examination will be suited to the attainment of those who have studied Latin systematically for at least five periods a week for four years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of passages selected from Cæsar, Vergil, Ovid, and Cicero, with a thorough examination on a prescribed portion of Cicero's speeches (Orations against Catiline, II, III, IV), to test the candidate's mastery of the ordinary forms, constructions, and idioms. Candidates will be expected to have read Cæsar, De Bello Gallico, I–III; Cicero, the speeches against Catiline and on the Manilian Law; Vergil, Æneid, I–V; and in addition not less than twenty pages, Teubner text, of Cæsar (e.g., Book IV), twenty to twenty-five pages, Teubner text, of Cicero (e.g., the orations for Archias and Marcellus), nine hundred lines of Vergil, and fifteen hundred lines of Ovid, to be selected at the discretion of the preparatory teacher. While these readings are preferred, suitable equivalents will be accepted.

The examination in sight reading will be based on the assumption that candidates have read the portions above specified.

(*b*) The translation into Latin prose of a passage of connected narrative, based on one of the prose authors ordinarily read. Moulton's Preparatory Latin Composition or Dodge and Tuttle's Latin Prose Composition will indicate the amount of work required.

A more extended knowledge of grammar will be expected than in the case of Elementary Latin.

Practice in reading at sight, and a general training in the proper methods of reading, should form an important part of the preparation, from the very first. The Roman pronunciation is recommended.

IX. Advanced Greek. *Five* entrance units.*

The advanced examination will be adapted to the proficiency of those who have studied Greek in a systematic course of five exercises a week, extending through at least three school years. The two parts of the examination may be taken separately: —

(*a*) The translation at sight of an average passage of Homer; with questions on ordinary forms, constructions, and idioms, and on prosody.

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*An advanced foreign language includes the corresponding elementary, and the credit therefor.

(*b*) The translation into Attic prose of a passage of connected English narrative. The passage set for translation will be based on some portion of the Greek prose work usually read in preparation for college.

Before taking the examination in Advanced Greek the candidate should have completed at least four books of Xenophon's Anabasis or their equivalent in Attic prose, and six books of Homer's Iliad or their equivalent in the Odyssey. It is strongly recommended that Greek composition accompany all stages of the pupil's preparation, and that the pupil be practised in reading Greek aloud from the beginning of his course.

X. Advanced History. *Two entrance units.*

One of the following: —

1. The History of Greece and Rome, for those only who have offered English and American history as primary subjects.
2. The History of England and America, for those only who have offered Greek and Roman history as primary subjects.
3. The History of Europe, taking France or Germany as the central object of study, from the Germanic invasions to 1648.
4. Any one of the primary subjects not offered as such, combined with a year's detailed study of a limited period within that field.

Each of these subjects requires two years' study of not less than three recitation-periods a week, or its equivalent, but 1 and 2 may be divided, and a credit of *one entrance unit* will be given for evidence of proficiency representing one year's work in *one* of the two divisions included under each head.

The remarks in connection with the History requirements of the Primary Group apply to these, but a more thorough knowledge and greater power in combining facts and working out results will be expected. The same classes of tests in examination and written work will be applied, except in the case of the "detailed study of a limited period," on which an individual examination will be given. Especial attention will be paid to the use of English in all work submitted.

XI. Advanced Mathematics. *One entrance unit.*

Two of the following: —

1. Plane Trigonometry, with its applications.
2. Solid Geometry.
3. Elementary Analytic Geometry.
4. Advanced Algebra.

XII. Physics.

(*a*) ELEMENTARY. *One entrance unit.* The examination will be upon such elementary text-books as Gage's, Avery's, or Dolbear's, with emphasis upon Mechanics and Energy.

(*b*) ADVANCED. *Two entrance units.* In addition to (*a*), the candidate is required to present satisfactory evidence, by both certificate and record book, of having completed a year's course of laboratory experiments in Physics of such grade as Hall and Burgin's Text-Book of Physics.

XIII. Chemistry.

(*a*) ELEMENTARY. *One entrance unit.* Preparation for this requirement presupposes a course in general inorganic chemistry (the non-metals) of not less than three periods a week for a year, in amount equal to that in An Introduction to the Study of Chemistry, by Ira Remsen, with experimental work in the non-metals equal in amount to that in Experiments in General Inorganic Chemistry, by Frank W. Durkee. The experiments are to be performed by the students. A laboratory note-book, certified by the instructor and containing an exact record of the experimental work, must be presented by the candidate at the time of examination, or must accompany the certificate. After admission to the College students who have passed in Elementary Chemistry may take Chemistry 1, omitting the laboratory work of the first term; and if the examination is satisfactory, they may omit the entire work of the first term in Chemistry 1.

(*b*) ADVANCED. *Two entrance units.* Descriptive theoretical, inorganic chemistry, as in the elementary requirement, and in addition a course of one year, of at least three periods a week, devoted to the study of the metals, in amount equal to that in Remsen's text-book, mentioned above, and experiments with the metals and their compounds, covering the ground of and equal in number to those in Durkee's experimental manual. Students who have passed the advanced requirement may elect Chemistry 2; but before taking Chemistry 11 and 12 they will be required to take Chemistry 1, omitting the laboratory work, or to pass a satisfactory examination thereon.

XIV. Natural History. *One entrance unit.*

In the natural history subjects the examiners give more weight to the character of work than to time spent; but at least three periods a week for the year must have been given to the subject presented. In order that an adequate opinion may be formed, certificates should give full information as to text-books, character of work done, and relative amount of time devoted to laboratory and to recitation. Laboratory work will count for more than recitation, and certified laboratory note-books should be submitted. In botany and zoölogy the work should be on structural lines, and little credit will be allowed for time spent in the analysis of plants, or in the identification of birds, insects, etc. The following are the subjects which may be presented for admission, the names of authors of text-books in connection with each being an index of the character of the work expected:—

1. General Biology: Huxley and Martin, Dodge.
2. Botany: Bergen, Bessey, Campbell, Spaulding, Setchell.
3. Zoölogy: Boyer, Colton, Needham.
4. Physiology: Huxley, Martin, Jenkins (Advanced Course).
5. Geology: Dana, Leconte, Scott, Tarr.

TABULAR VIEW OF REQUIREMENTS FOR ADMISSION.

Candidates for Degree of A.B.

[Boldface figures indicate the credit in entrance units. The italicized parentheses *Prim.* and *Sec.* refer to the fuller statements of each requirement under the headings Primary and Secondary Group on pages 34-43.]

Group.	English.	Foreign Languages.	History.	Mathematics.	Science.
PRIMARY, 12 Units. All subjects required. Conditions amounting to three units allowed, but only one unit in one subject.	Elementary (*Prim. 1*) **3.**	Elementary (*Prim. 2*) **3.** [One of the following: German, French, Latin, or Greek.]	Elementary (*Prim. 3* **3.** [Two of the following: Greek, Roman, English, American.]	Elementary (*Prim. 4*) **3.**	
SECONDARY, 12 Units. All subjects optional except that one advanced foreign language other than the Primary Group language must be included. But *one* of the *six* possible conditions may be in the advanced foreign language.	Advanced (*Sec. 1*) **1.** Does not include Elementary English.	Elementary German (*Sec. 2*) **3.** Elementary French (*Sec. 3*) **3.** Elementary Latin (*Sec. 4*) **3.** Elementary Greek (*Sec. 5*) **3.** Advanced German (*Sec. 6*) **4.*** Advanced French (*Sec. 7*) **4.*** Advanced Latin (*Sec. 8*) **6.*** Advanced Greek (*Sec. 9*) **5.***	Advanced (*Sec. 10*) **2.** [Either i, ii, iii, or iv.] [One-half of i or ii. **1.**] Does not include Elementary History.	Advanced (*Sec. 11*) **1.** [Two of i, ii, iii, and iv.] Does not include Elementary Mathematics.	Physics (*Sec. 12*) (*a*) **1.** (*b*) **2.** *b* includes *a.* Chemistry (*Sec. 13*) (*a*) **1**, (*b*) **2.** *b* includes *a.* Natural History (*Sec. 14*) **1.**

* An advanced foreign language includes the corresponding elementary, and the credit therefor.

THE OLD REQUIREMENTS.

Subjects for Examination.

The subjects in which candidates for admission to the Freshman Class may be examined are given below. The requirements for candidates for the several courses will be found in the schedule of examination groups on pages 50 to 52.

LATIN.

1. LATIN GRAMMAR.— Allen and Greenough's or Harkness's Grammar, including Prosody.

2. CÆSAR.— Gallic War, Books I–IV.

3. CICERO.— Orations against Catiline, for Archias, Marcellus, and the Manilian Law.

4. VERGIL.— Æneid, Books I-VI.

5. OVID.— Metamorphoses, 2,500 lines.

6. LATIN COMPOSITION.— Collar's Latin Composition, and translation into Latin of a connected passage of English prose, not taken from the text-book, but involving only familiar words and idioms.

Alternatives.— While the foregoing requirements are preferred, equivalents will be accepted; also in place of the last two orations of Cicero and requirement 5, an examination may be taken, if desired, on average passages from the above-named works, not included in the portions prescribed.

GREEK.

7. GREEK GRAMMAR. — Hadley-Allen's or Goodwin's Greek Grammar, including Prosody.

8. XENOPHON.— Anabasis, four books.

9. HOMER.— Iliad, three books.

10. GREEK COMPOSITION.— The translation into Greek of a connected passage of English prose. Woodruff's Greek Composition is recommended as a drill-book.

Alternatives.— In place of requirements 8 and 9, translation at sight of easy passages of the Anabasis and average passages from the Iliad (with a vocabulary of the less-used words).

GERMAN.

11. ELEMENTARY GERMAN.

The Elementary Examination will be adapted to the proficiency of those who have studied German in a systematic course of five periods a week for *one* year. It will consist of two parts (which, however, cannot be taken separately): —

(*a*) The translation at sight of a passage of easy prose containing no rare words.

The passages set for translation will be suited to candidates who have read not less than one hundred and fifty duodecimo pages of simple German, chiefly narrative prose; this amount includes sight reading done in class. It is important that all translation be done into clear and idiomatic English.

(*b*) The translation into German of simple English sentences, to test the candidate's familiarity with elementary grammar.

Elementary grammar is understood to include the conjugation of the weak and the more usual strong verbs, the declension of articles adjectives, pronouns, and such nouns as are readily classified; the commoner prepositions; the simpler uses of modal auxiliaries; the elements of syntax and word-order. Proficiency may also be tested by direct questioning.

Practice in pronunciation by reading aloud as much as possible from the texts used in the class is recommended; also the writing of German from dictation.

12. INTERMEDIATE GERMAN.— The Intermediate Examination will be adapted to the proficiency of those who have studied German in a systematic course of at least four periods a week for *two* years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of ordinary German.

The remarks under 13 (*a*) apply, merely substituting "*two hundred*" for "*six hundred*" in that program.

(*b*) The translation into German of a passage of simple English prose.

A less extensive knowledge of syntax than for 13 (*b*) will be presupposed in the selection of the matter for translation.

13. ADVANCED GERMAN.— The advanced examination will be adapted to the proficiency of those who have studied German in a systematic course of at least four periods a week for *three* years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of standard German.

In preparation for this examination candidates will be expected to have read, in addition to the amount specified under "Elementary (*a*)," at least six hundred duodecimo pages of classical and contemporary prose and verse, to be selected from such works as the following: Riehl, *Kulturgeschichtliche Novellen;* Freytag, *Bilder aus der deutschen Vergangenheit*, especially *Aus dem Mittelalter* and *Aus dem Jahrhundert des groszen Krieges;* Kohlrausch, *Das Jahr* 1813;

Schiller, *Der dreiszigjährige Krieg*, *Wilhelm Tell*, *Maria Stuart*, *Die Jungfrau von Orleans;* Goethe, *Hermann und Dorothea*, *Egmont*, *Iphigenie;* Lessing, *Minna von Barnhelm*. At least one-half of the amount read should be nineteenth-century prose.

(*b*) The translation into German of a passage of easy English prose.

In preparation for this examination candidates will be expected to have acquired a thorough knowledge of accidence, the elements of word-formation, and the principal uses of prepositions and conjunctions; the essentials of syntax, especially the uses of modal auxiliaries and the subjunctive and infinitive modes. Proficiency may also be tested by direct questioning.

It is recommended that the candidate acquire the ability to follow a recitation conducted in German, and to answer in that language questions asked by the instructor.

FRENCH.

14. ELEMENTARY FRENCH.

The Elementary Examination will be adapted to the proficiency of those who have studied French in a systematic course of five periods a week for *one* year. It will consist of two parts (which, however, cannot be taken separately) : —

(*a*) The translation at sight of easy prose.

The passages set for translation will be suited to candidates who have read not less than two hundred duodecimo pages from the works of at least three different authors; this amount includes sight-reading done in class. Not more than half the reading should be from works of fiction. It is important that all translation be done into clear and idiomatic English.

(*b*) The translation into French of English sentences, or a short, connected passage, to test the candidate's familiarity with elementary grammar.

Elementary grammar is understood to include the conjugation of regular and the more usual irregular verbs, such as *aller*, *tenir*, *pouvoir*, *savoir*, *voir*, *vouloir*, *dire*, *faire*, and those belonging to the classes represented by *dormir*, *ouvrir*, *connaître*, *conduire*, *craindre;* the forms and positions of the personal pronouns; the uses of other pronouns and of possessive, demonstrative, and interrogative adjectives; the inflection of nouns and adjectives for gender and number, except rare cases; the commoner uses of the article; and the partitive constructions. Proficiency may also be tested by direct questioning.

Pronunciation should be carefully taught, and the pupil should be accustomed to hear and understand the spoken language. The writing of French from dictation is also recommended.

15. INTERMEDIATE FRENCH.

The Intermediate Examination will be adapted to the proficiency of those who have studied French in a systematic course of at least four periods a week for *two* years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of ordinary French.

The remarks under 16 (*a*) apply, merely substituting "*three hundred*" for "*eight hundred.*"

(*b*) The translation into French of a passage of easy English.

A less extended knowledge of syntax than for 16 (*b*) will be presupposed in the selection of matter for translation.

16. ADVANCED FRENCH.

The Advanced Examination will be adapted to the proficiency of those who have studied French in a systematic course of at least four periods a week for *three* years. It will consist of two parts (which may be taken separately): —

(*a*) The translation at sight of standard French.

The passages set for translation will be suited to candidates who have read, in addition to the amount specified under "Elementary (*a*)," not less than eight hundred duodecimo pages of classical and contemporary prose and verse from the writings of at least five standard authors.

(*b*) The translation into French of a passage of English prose.

In preparing for this examination candidates will be expected to have acquired a thorough knowledge of accidence and a familiarity with the essentials of French syntax, especially the uses of modes and tenses, and also with the commoner idiomatic phrases. Proficiency may also be tested by direct questioning.

Careful attention should be paid to pronunciation and to the use of spoken French, that the candidate may at least acquire the ability to follow a recitation conducted in the language and to answer questions asked by the instructor.

MATHEMATICS.

17. ALGEBRA, through quadratic equations, including radical quantities, together with proportion, arithmetical and geometrical progression, and the binomial theorem for positive integral exponents.

18. PLANE GEOMETRY.

19. SOLID GEOMETRY.

HISTORY.

20. (*a*) ANCIENT HISTORY (Greece and Rome), or
(*b*) MEDIÆVAL AND MODERN EUROPEAN HISTORY, or
(*c*) THE HISTORY OF ENGLAND AND THE UNITED STATES.

The following text-books are recommended, and will indicate the amount of preparation required: (*a*) and (*b*), Sheldon's Outlines of General History; (*a*), for Ancient History, Oman's or Smith's (smaller) Greece, Allen's Roman People; for Mediæval and Modern Europe, Myers's General History; for the History of England and the United States, Montgomery's Leading Facts in English History, Fiske's History of the United States for Schools, Johnston's History of the United States for Schools, Montgomery's Students' American History, or Channing's Students' History of the United States. The use of such manuals as Bacheler's American History (Library Method) and Getchell's Study of Mediæval History by the Library Method is helpful.

ENGLISH.

21. ENGLISH.

Note.— No candidate will be accepted in English whose work is notably defective in point of spelling, punctuation, syntax, idiom, or division into paragraphs.

1. *Reading and Practice.*— A certain number of books will be set for reading. The candidate will be required to present evidence of a general knowledge of the subject-matter, and to answer simple questions on the lives of the authors. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number — perhaps ten or fifteen — set before him in the examination paper. The treatment of these topics is designed to test the candidate's power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of a part or the whole of this test, the candidate may be allowed to present an exercise book, properly certified by his instructor, containing compositions or other written work done in connection with the reading of the books.

The books set for this part of the examination will be: —

1900.— Dryden's Palamon and Arcite; Pope's Iliad, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in The Spectator; Goldsmith's Vicar of Wakefield; Scott's Ivanhoe; De Quincey's Flight of a Tartar Tribe; Cooper's Last of the Mohicans; Tennyson's Princess; Lowell's Vision of Sir Launfal.

For lists for 1901 and 1902, see the New Requirements, Elementary English.

2. *Study and Practice.*— This part of the examination presupposes the more careful study of each of the works named below. The examination will be upon subject-matter, form, and structure; and will also test the candidate's ability to express his knowledge with clearness and accuracy. The books set for this part of the examination will be: —

1900.— Shakespeare's Macbeth; Milton's Paradise Lost, Books I and II; Burke's Speech on Conciliation with America; Macaulay's Essays on Addison and Milton.

For lists for 1901 and 1902, see the New Requirements, Elementary English.

SCIENCES.

22. Physics.— The requirement in Physics is an acquaintance with the subject as treated in Avery's or Gage's work, or any other of similar grade, with special attention to Mechanics and ability to work out numerically problems in that department.

23. Chemistry.— Remsen's Briefer Course or its equivalent.

24. Natural History.— Any two of the four subjects: Botany, Zoölogy, Physiology, or Geology. The amount required in each is essentially covered by any good text-book for secondary schools. In Botany and Zoölogy, laboratory work is of more importance than the study of the text-book. As illustrating the character of preparation required, the following books may be mentioned: In Botany, Bessey's Briefer Course, Campbell's Structural and Systematic Botany, or Spaulding's Introduction to Botany; in Zoölogy, Colton's Practical Zoölogy; in Physiology, Huxley's Elementary Physiology, Jenkins's Advanced Lessons in Human Physiology, or Martin's Human Body, briefer course; in Geology, Dana's Geological Story Briefly Told, or Leconte's Elements of Geology.

25. Freehand Drawing.— Outline drawing from simple casts, geometric models, and groups of models.

Examination Groups.

FOR COURSES LEADING TO DEGREE OF A.B.

Candidates under the old requirements for courses leading to the degree of Bachelor of Arts must take their examination in the subjects comprised in one of the two following groups: —

Group I.

Latin, 1, 2, 3, 4, 5, and 6.
Greek, 7, 8, 9, and 10.
German, 11, or French, 14.
Mathematics, 17 and 18.
History, 20.
English, 21.

Group II.

Latin, Mathematics, History, and English, as in I.
German, 11 and 13. } or { French, 14 and 16.
French, 14. } { German, 11.

This group differs from Group I in the substitution for Greek of advanced work in Modern Languages.

FOR COURSES LEADING TO DEGREE OF Ph.B.

Candidates for courses leading to the degree of Bachelor of Philosophy must take their examination in the subjects comprised in one of the two following groups: —

Group III.

LATIN, MATHEMATICS, HISTORY, and ENGLISH, as in I.
GERMAN, 11 and 12. FRENCH, 14. or FRENCH, 14 and 15. GERMAN, 11.

Group IV.

MATHEMATICS, HISTORY, and ENGLISH, as in I.
GERMAN, 11 and 13. FRENCH, 14. or FRENCH, 14 and 16. GERMAN, 11. or GERMAN, 11 and 12. FRENCH, 14 and 15.

PHYSICS, 22.
CHEMISTRY, 23.
NATURAL HISTORY, 24.

To be accepted, these subjects must represent an aggregate of at least three years of study, with an average of four periods a week.

[LATIN, 1, 2, 3, and in 4, three books of the Æneid, or their equivalent, will be accepted in place of one intermediate Modern Language; that is GERMAN, 11 and 12, or FRENCH, 14 and 15.]

Groups III and IV are offered to meet the needs of graduates of the English courses, so-called, in the best high schools, who may desire to enter upon college study looking toward a degree. It will be seen, by reference to the appropriate numbers in the preceding subject list, that Group III accepts a smaller amount of preparation in the modern languages than that required for entrance through Group II to courses leading to the degree of Bachelor of Arts. Group IV allows the substitution for Latin of an increase over the requirement of Group III in modern languages, and of elementary work in three scientific subjects.

FOR COURSES LEADING TO DEGREE OF S.B.

Group V.

MATHEMATICS, HISTORY, and ENGLISH, as in I.
LATIN, 1, 2, and in 4, four books of the Æneid; or

GERMAN, 11 and 12; or

FRENCH, 14 and 15.

SCIENCE: One year's work, with a weekly average of at least three periods of class work, in one of the following: Chemistry, Physics, Physiology, Botany, Zoölogy, Geology, Drawing.

This examination group admits to the courses leading to the degree of Bachelor of Science: the General Course in Science, the Special Courses in Biology and Chemistry, and the Medical Preparatory Course. These courses are intended primarily for graduates of English high schools who have a special object before them lying along the lines laid out for these courses.

FOR CANDIDATES FOR ENGINEERING COURSES.

Candidates for the courses leading to the degree of Bachelor of Science in Engineering will be required to take the subjects comprised in

Group VI.

MATHEMATICS, 17, 18, and 19.

GERMAN, 11, or FRENCH, 14.

ENGLISH, 21.

DRAWING, 25.

GENERAL INFORMATION RELATING TO ADMISSION.

The regular examination for admission begins on the day after Commencement, and continues through the two following days. A second examination is held on the Tuesday, Wednesday, and Thursday preceding the beginning of the College year. The examination begins at 9 o'clock A.M., on each of these days. The assignment of examination subjects appears in the Calendar, pages 4 and 5.

At the regular examination in June those who will be candidates for admission to the Freshman class one or two years later may present themselves for examination in the subjects of the Primary Group, and in others upon which their teachers may certify that they are adequately prepared, and will receive certificates of the subjects upon which they pass, such subjects to be credited to them when they appear for their final examinations.

For admission to advanced standing an examination must be well sustained, both in the preparatory studies and in the studies in which the candidate desires credit for advanced work.

Students entering on examination are required to register at the office of the Registrar before taking their examinations. Those entering on certificate are required to register before noon on the opening day of the College year.

A fee of five dollars must be paid in advance by every candidate who is examined at any other place than the College.

Admission by Certificate. — Certificates covering the preparatory work of candidates for admission are received in lieu of examination from schools that have filed with the Secretary of the Faculty statements of their courses of study and of their teaching force, and have been approved by the Faculty. Each certificate must cover a preparatory course of not less than four full years of school work, which must have been in approved schools, though not necessarily continuously in one school. It must state the time devoted to each subject offered for admission, the standing of the student according to the school record, and such facts in regard to method and means of instruction as the department examiners may call for.

Certificates should be in the hands of the Registrar of the College at least one month before the opening of the College year, and any certificate from a school not on the approved list of the College should be accompanied by the necessary information in regard to courses and facilities of instruction, written upon the official blank of the College, in order to be considered by the Committee on Admission.

Blank forms for certificates, and for application from secondary schools, will be sent upon request made to the *Registrar of the College*, *Tufts College*, *Massachusetts.*

Requirements for Degrees.

Students may enter upon their work in the courses in Liberal Arts as candidates for the degree of Bachelor of Arts, or for that of Bachelor of Philosophy, or for that of Bachelor of Science, according to the examination group upon which they are admitted to the College. In any case the ground of promotion and of graduation is the intellectual attainment of the individual student, not a fixed requirement of a certain number of years of study. Candidates for the degree of Bachelor of Philosophy will be necessarily somewhat more limited in their selection of subjects because of the nature of their preparation, while the courses leading to the degree of Bachelor of Science consist mainly of prescribed work on special lines. Those who have fulfilled the requirements for the degree of Bachelor of Philosophy may obtain the degree of Bachelor of Arts on the satisfactory completion of six term hours of additional work in approved elective subjects.

The plan of study offered to the student is at once liberal, controlled, and elastic. It combines the essentials of the general culture, which is the prime object of the undergraduate college course, with an opportunity for the development of the individual on the lines to which he is especially adapted, and for preparation for university and professional study. Throughout the courses students have large liberty in choosing their work, but they are brought into personal advisory relations with the major instructors, who arrange and guide a considerable portion of their work after its general direction has been determined. A reasonable amount of guided specialization is thus provided for, while the personal relations of the student with the major instructor form a valuable adjunct to the routine work of instruction in developing the interest and the character of the students. All work actually accomplished by the student in regular standing counts toward the attainment of the degree. The period within which the degree may be attained depends upon the industry and ability of the individual student.

SYNOPSIS OF THE REQUIREMENTS

For A.B. and Ph.B.

[NOTE.—Each department offers a series of subjects for study. The unit for indicating the requirements is the *term hour*, which represents the number of program hours per week required in each subject, expressed for a period of one term. Thus a subject calling for three hours a week, for one term, represents a requirement of three term hours; if it calls for three hours a week for one year, or two terms, the requirement in that subject is six term hours.]

(1) The requirement for the degree of Bachelor of Arts or Bachelor of Philosophy is the satisfactory completion of subjects aggregating one hundred and twenty-eight term hours.

(2) The program of prescribed studies is as follows:—

	TERM HOURS.
LANGUAGES (Latin, Greek, French, German; each student to take *three*)	18
ENGLISH (Rhetoric, Composition, Themes)	10
MATHEMATICS	6
PHYSICAL SCIENCE (Physics, Chemistry, Biology; each student to take *one*)	6
MENTAL AND MORAL SCIENCE (Philosophy, History, Political Science; each student to take *one full or two half* subjects)	6
PHYSICAL TRAINING	2
A total of	48

The requirements are by groups, not by special subjects, and in each group except English and Mathematics some choice is allowed the student.

The program of the student in the first year will be made up from the prescribed groups, except by special permission of the Faculty.

(3) At the end of the first year the student is required to choose a major department, in which he must complete, before graduation, work amounting to eighteen term hours. He may offer work already done in that subject in some one of the prescribed groups as a part of the eighteen hours which he is required to give to his major department, but no subject indicated in the catalogue as elementary can be counted in such

work. The major department and the plan of work for the first half-year must be reported by the student, in the proper form, upon registration on the opening day of the College year.

(4) Acting under the advice of the instructor in his major department, the student will make up a program of eighteen term hours in collateral subjects; that is, subjects tending to strengthen and assist his work in his major. The student's major instructor is to be his official adviser on general matters relating to his college course.

(5) The remaining forty-four term hours of the required aggregate are to be made up by the free election of the student from the various subjects offered, limited only by special restrictions applied to certain subjects.

(6) Upon the satisfactory completion of the aggregate requirement, the student is entitled to receive the Bachelor's degree, but no student shall be granted a degree in less than four years of residence, unless he shall have obtained Grade B as an average for his entire work.

Summary.

	Term Hours.
Prescribed work	48
Major department	18
Collateral subjects	18
Free elective	44
	128

For S.B.

The requirement for the degree of Bachelor of Science is the satisfactory completion of one hundred and twenty-eight term hours, according to the programs for the General Science Course, Special Courses in Biology and Chemistry, and Medical Preparatory Course, elsewhere described. The highly specialized character of these courses leaves only a small allowance of time outside the prescribed subjects, but there is a limited amount of time at the disposal of the student for free election.

The requirements for the degree of Bachelor of Science in Engineering are given in connection with the detailed statement of the Department of Engineering.

Departments of Instruction.

MAJOR DEPARTMENTS.

Any of the following may be chosen as major departments :—

- ENGLISH.
- GERMAN.
- FRENCH.
- LATIN.
- GREEK.
- PHILOSOPHY.
- HISTORY.
- POLITICAL SCIENCE.
- MATHEMATICS.
- PHYSICS.
- CHEMISTRY.
- BIOLOGY.
- ENGINEERING.

In the subjoined statement of the work done in the different departments, the name of the major instructor is that given at the head of each department that offers a major course. In other cases the name is given of the instructor in general charge of the department. When two names appear, major students will be guided by the usage of the department. Names of instructors in charge of each subject are appended to the brief statement of the subject itself.

Bracketed subjects will not be given during the current year. In many cases alternates are indicated, which fill their places in the program for this year. All subjects continue through the year unless otherwise indicated.

Subjects marked with a * will not be counted for honors. Subjects marked with a ** will be counted for honors only when special conditions are complied with.

A tabular view of the program of hours assigned to the subjects in the courses in Liberal Arts follows the subjoined statements of the several departments. No two subjects assigned to the same hour can be taken simultaneously by any student.

ENGLISH.

PROFESSOR MAULSBY AND ASSISTANT PROFESSOR WHITTEMORE.

The work of the department includes the theory and practice of composition and the study of literature.

Composition is required to the middle of the third year, or ten term hours. In the first year it is chiefly extemporaneous. After one term, those who have attained Grade B may substitute a daily theme course, or may postpone composition to the following year. The more formal study of the subject begins with the second year, and includes with theory a large amount of practice. In both years, and throughout the course, frequent consultations with each writer are arranged. On completing the work of the second year, the student has an option for one term, and thereafter free election. Composition as elective is more closely connected with the study of literature, and in such forms as essay, story, oration, poem, is indicated in the following scheme of subjects.

In the study of literature, intelligent appreciation of the author's thought and of his characteristic mode of expression is the immediate result held in view. Biographical and philological details, the effect of environment, and the mass of published criticism that clusters about the great names are not neglected, although given a subordinate place. The method at first pursued demands attentive reading of more than can be considered in the class-room, frequent written expression of literary judgments, and occasional private investigation of topics not otherwise treated. The library contains multiple copies of many of the authors read. In the more advanced classes the seminary method is employed. Whether or not the period studied makes special study of linguistic forms necessary, in all subjects the thought-content is regarded as of prime importance. Besides, in all literary subjects but the most elementary, composition is required as an essential part of the work.

SUBJECTS.

*1. Composition. Lectures, discussion of papers. *One hour a week for the first year. Friday at* 3. PROFESSOR SHIPMAN.

*1 B. Daily Composition. Open to those who have attained Grade B in English 1. (*Second half-year.*) PROFESSOR SHIPMAN.

*2. The Theory and Practice of Composition. Lectures and readings; criticism and discussion of themes. *Monday*, *Wednesday*, *and Friday*, *at* 11.45. ASSISTANT PROFESSOR WHITTEMORE.

3. The aim in English 3 is to emphasize the fundamental function of expository writing, and to aid the student to gain clearness, ease, and rapidness of expression. The written work consists of five themes each week. *Monday at* 9.45 (*first half-year*).
ASSISTANT PROFESSOR WHITTEMORE.

This subject is open only to students who have attained at least Grade B in English 2.

*4. Three kinds of writing, narration, description, and exposition, are discussed, and specimens from eminent authors are studied. The written work consists of two themes each week. *Monday at* 8.45 (*first half-year*). ASSISTANT PROFESSOR WHITTEMORE.

[*5. Argumentative Composition, a study of its requirements as observed by successful writers, with constant practice by the student. The written work consists of two themes or their equivalent each week. *Two hours a week* (*first half-year*). PROFESSOR SHIPMAN.]

*6. Essays, with special attention to the construction of extended discourse. Weekly papers, plans, free discussion, individual criticism. *Two hours a week* (*first half-year*), *or two hours a week* (*second half-year*). PROFESSOR SHIPMAN.

[Subjects 1, 1 B, and 2, with 3, 4, 5, or 6, constitute the prescribed work in English. For the present year, subjects 1, 1 B, and 6 will be in charge of Mr. Whittemore and Mr. Thompson.]

7. English Versification. Study of poetic forms and practice in poetic composition. *Wednesday at* 11.45. PROFESSOR MAULSBY.

*11. General View of English Literature. Lectures, examinations, and required reading. *Monday at* 10.45.
MR. EARLE, ASSISTANT PROFESSOR WADE,
PROFESSOR KNIGHT, PROFESSOR MAULSBY.

**12. American Literature. Lectures, required reading, special topics, essays. *Monday*, *Wednesday*, *and Friday at* 3.
PROFESSOR MAULSBY.

[13. The English Romantic Movement in Poetry. Lectures, reading, brief critical essays. *Monday*, *Wednesday*, *and Friday at* 2 (*first half-year*). ASSISTANT PROFESSOR WHITTEMORE.]

[14. Poets of the Victorian Era. Lectures, reading, individual treatment of authors not studied in the class. *Monday, Wednesday, and Friday at* 2 (*second half-year*). PROFESSOR MAULSBY.]

15. Prose of the Nineteenth Century. Lectures, reading, brief critical essays. *Thursday at* 2. ASSISTANT PROFESSOR WHITTEMORE.

16. Browning. Poems, collateral reading, lectures, brief critical essays. *Wednesday at* 9.45. PROFESSOR MAULSBY.

[17. Shakespeare. Reading of selected plays, lectures, examinations, essays. *Monday, Wednesday, and Friday at* 9.45 (*first half-year*). PROFESSOR MAULSBY.]

[18. Shakespeare. Reading of selected plays, lectures, brief critical essays. *Monday, Wednesday, and Friday at* 9.45 (*second half-year*). ASSISTANT PROFESSOR WHITTEMORE.]

English 18 can be taken only after 17.

19. Chaucer. Study of forms and pronunciation, reading of selections from the Canterbury Tales and the minor poems, essays. *Tuesday, Thursday, and Saturday at* 10.45. PROFESSOR MAULSBY.

English 19 may be dropped at the end of the first half-year.

[*20. Anglo-Saxon. Study of the grammar, and the reading of prose selections, during the first half-year. The subject may be continued through the second half-year, when the whole of Beowulf may be read. *Tuesday, Thursday, and Saturday at* 10.45. MR. EARLE.]

21. Advanced Anglo-Saxon. Chronological development of Anglo-Saxon prose and poetry. *Monday, Wednesday, and Friday at* 11.45. MR. EARLE.

[*22. Historical English Grammar. Brief history of the English language. The development of English sounds and their written characters. The growth of the several parts of speech and of their inflections. *Wednesday at* 8.45. MR. EARLE.]

23. The Short Story. Examples, and composition. *Two hours for the second half-year.* ASSISTANT PROFESSOR WHITTEMORE.

[24. History of English Criticism. Discussion, examinations, essays. *Three hours for the second half-year.* PROFESSOR SHIPMAN.]

25. Development of a Literary Form, as (*a*) the drama, (*b*) the novel, (*c*) the lyric.

(*a*) Development of the English Drama. *Wednesday at* 8.45.

Open to those who have taken 17. This subject may be made to count as a full three-hour subject. PROFESSOR MAULSBY.

26. Literary Relations of England and the Continent in the Sixteenth Century. Lectures and theses. *Tuesday, Thursday, and Saturday at* 8.45. MR. BAILEY.

ORATORY.

PROFESSOR MAULSBY.

It is intended that the study of oratory shall be of practical benefit to the general student, whether or not he looks to professional pursuit of the art. Exercises are practised in correct breathing, the production of tone, and in gesture; moreover, individual faults are pointed out and remedies suggested. The work in Oratory 1 aims at securing reading that shall be intelligent, natural, and forcible. In this subject the principles that underlie all successful public speaking are indicated, and, so far as possible, these principles are applied in practice. In the advanced subjects opportunity is offered for specializing, during two successive years, in either dramatic reading or in senatorial oratory. In connection with oratory as a means of persuasion, it is urged that students take related subjects in English composition, as English 5.

SUBJECTS.

1. The Principles of Oratory Exemplified in Practice. Class exercises in vocalization and gesture. *Thursday at* 3.

2. Study of Selections from Shakespeare and Browning. Individual presentation of standard poetry and prose. *Tuesday at* 2.

3. Study of Selections from American Orators. Individual presentation of forensics. *Thursday at* 2.

4. Dramatic Rendering. Study and delivery of scenes from the standard drama. The possible public presentation of a play. *Two hours for the first half-year.*

5. Formal Oral Debate. The practice of debate, under the usual parliamentary forms of a deliberative body. The possible presentation of a public debate. *One hour, to be arranged.*

GERMAN.

PROFESSOR FAY.

The aim of the department is twofold, according as the student has entered with the elementary or the advanced requirement. In the former case it is to lead him in the briefest possible time to such a mastery of the language as will enable him to use it as a source of information and medium of literary culture; where this preliminary work has already been done, to afford this literary culture itself, together with such historical and linguistic knowledge as may properly accompany advanced work in a literary department. Hence, in the elementary subjects, facility and accuracy of translation are sought by means of copious reading and careful grammatical drill; in the intermediate year the classic masterpieces are read for their own sake, together with such historical material as will throw light upon the epoch in which they were written or with which they deal; in the advanced work the systematic study of the history of the literature is undertaken, and opportunity is afforded for acquiring a knowledge of the earlier literary forms. Composition forms an important element in instruction and in the practice of the language. Though no attempt is made to teach the student to speak the language, he is trained from the outset to hear and to understand it when spoken, chiefly for the sake of the reflex influence of such practice upon pronunciation.

Six consecutive subjects are offered. While it is not impossible to take them all within the four college years, the scheme is based upon the supposition that the earlier ones will have been taken in the preparatory school.

SUBJECTS.

*1. Elementary German. Joynes-Meissner Grammar, with Lewis's Exercises; Bernhardt's Auf der Sonnenseite; Zschokke, Der zerbrochene Krug; Frommel, Eingeschneit; Buchheim's Balladen und Romanzen. *Tuesday, Thursday, and Saturday at* 9.45.

PROFESSOR FAY.

German 1 is the equivalent of the entrance requirement in elementary German, and should be taken in the Freshman year by all who enter with a condition in that subject.

*2. Intermediate German. Reading, Grammar, and Composition. Review of grammatical principles, especially with reference to syntax. Reading of modern prose and poetry, such as Riehl, Der Fluch der Schönheit; Freytag, Aus dem Staat Friedrichs des Grossen; Scheffel, Der Trompeter von Säkkingen. *Tuesday, Thursday, and Saturday at* 8.45. PROFESSOR FAY AND MR. DEMETER.

German 2, when taken by entering students, presupposes two years' study of the language in the preparatory school. It is possible for a student who has done with distinction the work of German 1, and who shall do a prescribed amount of outside reading, to omit this subject and enter German 3.

**3. First half-year: course for the rapid reading of modern prose. Contemporary authors. Second half-year: course introductory to the classic authors: Lessing, Minna von Barnhelm; Schiller, Die Jungfrau von Orleans; Goethe, Hermann und Dorothea. *Monday, Wednesday, and Friday at* 9 45. PROFESSOR FAY AND MR. DEMETER.

For entering students German 3 presupposes three years of preparatory study. It may be taken as a half-subject by more advanced students.

**3 B. German Composition. First half-year: Stein's Exercises, original themes, dictation, conversation. Second half-year: Buchheim's Exercises, with more advanced work in original themes, oral and written translation into German, and conversation. This course is offered to students who have satisfactorily completed German 2 or its equivalent. *Monday and Friday at* 10.45. MR. DEMETER.

4. Schiller and Goethe. Lyrics; Egmont; Maria Stuart; Wallenstein; with collateral reading in historical prose. *Tuesday, Thursday, and Saturday at* 11.45. PROFESSOR FAY.

German 4 is open to entering students who have had four years of preparatory study, or who, having passed with distinction the entrance examination in Advanced German, also pass with credit a special examination in advanced grammar and sight translation.

5. Advanced Course in Lessing and Goethe. Nathan der Weise, Emilia Galotti, Laocoön; Tasso, Iphigenie, Faust; with collateral reading. *Monday, Wednesday, and Friday at* 10.45. PROFESSOR FAY.

6. History of German Literature: Vilmar, Kluge, with illustrative works for leading epochs. Course in Middle High German: Das Nibelungenlied; Walther Von der Vogelweide. A thesis is required of candidates for honors. *Tuesday, Thursday, and Saturday at* 8.45. PROFESSOR FAY.

FRENCH.

PROFESSOR FAY AND PROFESSOR LEWIS.

The plan and scope of the department are, in general, the same as those of the German Department, to the statements of which the student is referred. Six consecutive subjects are offered.

SUBJECTS.

*1. Elementary French. The essentials of grammar, with composition; Grandgent's Short Grammar, with College Exercises; a French Reader; reading of short works of modern authors in prose and verse. *Tuesday, Thursday, and Saturday at* 9.45.

PROFESSOR LEWIS.

French 1 is the equivalent of the entrance requirement in Elementary French, and should be taken in the Freshman year by all who enter with a condition in that subject.

*2. Intermediate French. Reading, Grammar, and Composition. Review of grammatical principles, especially with reference to syntax; exercise in composition; short weekly themes; reading of modern fiction and drama, such as Merimée's Colomba and Sandeau's Mademoiselle de la Seiglière. *Tuesday, Thursday, and Saturday at* 8.45.

PROFESSOR LEWIS.

French 2, when taken by entering students, presupposes two years' study of the language in a preparatory school. It is possible for a student who has done with distinction the work of French 1 in college, and who shall do a prescribed amount of outside reading, to omit this subject and enter French 3.

**3. First half-year: Course for the rapid reading of modern authors, Thiers, Taine, de Vigny. Second half-year: Introductory work in Seventeenth-Century Classics, Corneille, Racine, Molière, Boileau, with collateral reading concerning the period. Review of grammatical principles in Ploetz's Nouvelle Grammaire Française, and occasional brief themes. *Monday, Wednesday, and Friday at* 8.45.

PROFESSOR LEWIS.

For entering students, French 3 presupposes three years of preparatory study. It may be taken as a half-subject by more advanced students.

4. Literature and Manners of the Seventeenth Century. Crane's Société Française au XVII^e Siècle; Molière, Les Précieuses Ridicules, Les Femmes Savantes; Rostand, Cyrano de Bergerac; Saint-Simon; Madame de Sévigné; Bernardin, Morceaux Choisis des Classiques Français du XVII^e Siècle. *Monday, Wednesday, and Friday at* 8.45.

PROFESSOR FAY.

French 4 is open to entering students who have had four years of preparatory study of the language, or who, having passed with distinction the entrance examination in Advanced French, also pass with credit a special examination in advanced grammar, composition, and sight translation. Juniors and Seniors whose major department is French may be permitted to take 4 and 5 in the same year.

5. Literature of the Eighteenth and Nineteenth Centuries. The Drama, Poetry, the Novel, Philosophical Essays, and Criticism. General history of French literature presented by lectures and collateral reading. *Monday, Wednesday, and Friday at* 3.

PROFESSOR FAY AND PROFESSOR LEWIS.

6. Demogeot, Littérature de la Langue Française, with illustrative texts for principal epochs. Course in Historical Grammar and Old French: Brunot, Grammaire Historique de la Langue Française; Bartsch, Chrestomathie de l'Ancien Français. A thesis is required of candidates for honors. *Monday, Wednesday, and Friday at* 11.45.

PROFESSOR FAY.

ITALIAN.

PROFESSOR FAY.

The work offered in Italian is open to those only who have had two years of college study in French. With such previous training, the student is able to acquire with rapidity a reading knowledge of the language, and thus to become acquainted within the year with the characteristics of contemporary and classic literature.

SUBJECT.

1. Grandgent's Grammar and Composition; Bowen's Reader; De Amicis; Maffei, Merope; Dante, Divina Commedia (Scartazzini's edition). *Tuesday, Thursday, and Saturday at* 10.45.

PROFESSOR FAY.

LATIN.

ASSISTANT PROFESSOR DENISON.

The study of the Latin language and literature is an important help to the attainment of the highest culture, as well as to the development of scientific habits of thinking. With these facts in view the department will endeavor to create an adequate appreciation of the masterpieces of the language, based on an accurate knowledge of details. It is believed to be quite possible for students, with proper direction and application, to acquire the power to read, understand, and enjoy the language without translation, and as much time as possible is devoted to reading with this end in view. The department aims to give attention not only to the literature, but also to the history, archæology, art, public and private life, and religion of the Roman people, as well as to the formation and structure of their language and its relation to other languages. Due emphasis is laid on the connection between ancient and modern life and thought. The various reading courses are supplemented by lectures on appropriate topics. Latin 1, 2, either 3 or 4, and two or more composition courses are offered every year, and a number of other subjects, such as Latin 8, 9, and 10, will be given, with due announcement, at intervals of two or more years. Courses 3, 4, 7, and all designated by numbers above 7, are suitable for graduate students. Such students will, however, be expected to do an extra amount of work in these subjects, and may be required to prepare theses or make other special investigations.

SUBJECTS.

*1. Livy (Books I and II, or XXI and XXII); Cicero (De Senectute, or De Amicitia); Horace (Odes and Epodes); reading at sight; lectures on suitable topics. *Tuesday, Thursday, and Saturday at* 10.45.

Latin 1 is introductory to all later subjects.

2. Tacitus (Germania and Agricola, or selections from the Histories); Petronius (Cena Trimalchionis); Apuleius; Pliny (selected letters); reading at sight; lectures on suitable topics. *Tuesday, Thursday, and Saturday at* 9.45.

Open to students who have completed Latin 1.

[3. Tacitus (selections from the Annals); Suetonius (selections); Juvenal (principal Satires); Martial (selected Epigrams); reading at sight. These authors will be studied with special reference to the information they afford in regard to the history and life of the early Empire. *Monday, Wednesday, and Friday at* 11.45.]

4. Horace (Satires and Epistles); Plautus (two plays); readings from Latin prose and verse to illustrate Roman life and literature; reading at sight. *Monday, Wednesday, and Friday at* 11.45.

Subjects 3 and 4 will be given in alternate years, and are designed for those who have completed Latin 2, or its equivalent. They may, by special arrangement with the instructor, be taken as half-courses in either half-year. Subject 4 is offered in 1899-1900.

*5. Latin Composition. Translation of English narrative, based on the prose authors read in Latin 1. *One hour a week for the year, to be arranged with the instructor.*

6. Latin Composition. *One hour a week for the year, to be arranged with the instructor.*

This subject is open to students who have completed Latin 5, and may be taken most profitably in connection with Latin 2. It is a necessary preliminary to competition for the Latin Composition Prize. Particular attention will be paid to Latin idiom.

7. Latin Composition. Original essays in Latin. Study of selections of prose as models. Reading at sight. *One hour a week for the year, to be arranged with the instructor.*

[8. Catullus and the Elegiac Poets, Tibullus, Propertius, and Ovid. Open to students who have completed Latin 1. Ability to read easy German will be desirable, although not absolutely essential. Schulze's Römische Elegiker will be used. *Three hours a week (second half-year), to be arranged with the instructor.*]

[To be given in 1900-1901.]

9. The Private Life of the Romans. Lectures and collateral reading. Short investigations by the students. Open to those who have completed Latin 1, if taken as supplementary to other work in Latin. There will be illustration by photographs and other reproductions as fully as the resources of the department permit. *Three hours a week (second half-year), to be arranged with the instructor.*

[Not to be given in 1900-1901.]

[10. Latin Epigraphy.]

[11. The Correspondence of Cicero.]

12. Vergil (Georgics and Bucolics); Lucretius (selections). Open to students who have completed Latin 1. *Three hours a week (first half-year), to be arranged with the instructor.*

[Not to be given in 1900-1901.]

[13. The Religion of the Romans. Lectures, collateral reading, and investigations by the students. Some facility in the use of German is essential. Reading in some Latin author. Open to properly qualified students who have completed Latin 1. *Three hours a week (second half-year), to be arranged with the instructor.*]

[Not to be given in 1900-1901.]

GREEK.

PROFESSORS SCHNEIDER AND WADE.

The aim of the department is to treat the Greek language not merely as a disciplinary instrument, but as a factor in the broadest and most liberal culture. Throughout the course the practice of reading at sight is encouraged, and especial effort is made to develop such facility that the student may resort with pleasure to the masterpieces of the Greek language, and find in them the delights and inspirations of a noble literature.

To this end also considerable attention is paid to the style and literary characteristics of the authors read. The relations of Greek to the Latin, German, and English languages are discussed, and the course is shaped to develop, discipline, and enrich the linguistic resources of the student. Reading without translation is encouraged from the beginning. Incidentally, studies are made of the customs and daily life of the people. Discussion relative to the laws, philosophy, and religion of the Greeks is introduced, and some attempt is made to exhibit the indebtedness of modern civilization to Hellenism.

SUBJECTS.

*1. Elementary. Goodwin's Grammar; Xenophon (Anabasis); Homer. *Double subject. Monday, Wednesday, and Friday at* 11.45, *and Tuesday, Thursday, and Saturday at* 9.45.
PROFESSOR WADE.

Greek 1 is intended for students entering without Greek and wishing to begin the study of that language. It is assumed that their previous training in linguistic studies will enable them to proceed rapidly and accomplish in one year all the work usually done in preparation for college. This subject may be taken (without credit) as a normal course by advanced students, on consultation with the instructor.

**2. Xenophon (Memorabilia or Cyropædia); Herodotus; Homer (Odyssey); Euripides, one play. *Monday, Wednesday, and Friday at 2.*
PROFESSOR WADE.

Greek 2 is for students who have passed the entrance requirements in Greek. The literary characteristics of the authors read will be dwelt upon, and lectures on suitable topics will be given.

3. Lysias (selected orations); Antiphon (Herodes and Choreutes); Demosthenes (On the Crown); Euripides (Medea); Æschylus (Seven against Thebes); reading at sight. *Tuesday, Thursday, and Saturday at* 11.45.
PROFESSOR WADE.

The works read in Greek 3 vary from year to year. The aim of this subject is to present systematically the dramatic and forensic literature of classical Greece. The work is accompanied by lectures.

4. Theocritus (Idylls and Epigrams); Pindar (Olympian and Pythian Odes); Tyler's Selections from Greek Lyrics; reading at sight in the Odyssey. *Hours to be arranged with the instructor.*

PROFESSOR SCHNEIDER.

Greek 4 is open to those who have completed Greek 3. Much attention is paid to the development of Greek lyric poetry, and the various theories of rhyme and metre are discussed. Lectures on appropriate topics are given in connection with the work.

5. Plato (Symposium); Aristotle (Ethics, Books I–IV, or Politics); reading at sight in Herodotus and Lucian. *Hours to be arranged with the instructor.* PROFESSOR SCHNEIDER.

Greek 5 is open to those who have completed Greek 4. A critical study of the authors read is supplemented by a general survey of Greek philosophy.

**6. Greek Composition; practice in sight-reading. *Half-subject. Hours to be arranged with the instructor.* PROFESSOR WADE.

Greek 6 may be taken by any one who has had the equivalent of Greek 1. It is especially recommended to Freshmen intending to pursue the study of Greek beyond the Freshman year.

7. Greek Composition; reading at sight; outside study of some Greek author, including the preparation of an essay. For 1899–1900 the subject is the Homeric Hymns. *Half-subject. Hours to be arranged with the instructor.* PROFESSOR WADE.

Greek 7 is intended primarily for Sophomores making Greek their major. Other students properly qualified will be admitted.

8. Advanced work, for the degree of Master of Arts. Will be arranged on consultation with the instructor to suit the needs of the student. A reading knowledge of French and German is necessary. The preparation of a thesis is required. Properly qualified undergraduates may be admitted. *Hours to be arranged.*

PROFESSOR WADE.

CLASSICAL ARCHÆOLOGY.

The fields of Greek and Roman Archæology and Art are so intimately related that they cannot be adequately treated as separate subjects. The following connected courses are therefore offered with a view to presenting a reasonably complete survey of ancient architecture, painting, and sculpture.

[1. Greek, Roman, and Etruscan Architecture; Ancient Painting. *Monday, Wednesday, and Friday at* 10.45 (*first half-year*).
PROFESSOR DENISON.]

[2. Greek and Roman Sculpture. *Monday, Wednesday, and Friday at* 10.45 (*second half-year*). PROFESSOR WADE.]

The work of both of these subjects will consist of lectures, collateral reading, and papers. There will be full illustration by photographs, stereopticon, etc.

[To be given in 1900–1901]

PHILOSOPHY.

PROFESSOR CUSHMAN.

The department offers work in all the traditional branches of the subject, adapted to the needs of many kinds of students. To the specialist in the sciences it affords a comprehensive view of the sciences from the point of view of metaphysics. To the student seeking general culture it offers the liberalizing study of the history of philosophy. To the specialist in philosophy it will give work as far as an undergraduate should go. The department offers no graduate work as yet.

In all cases where there is opportunity the department advises first for every student the introduction to the history of philosophy (Philosophy 1). The other subjects may then follow at the student's option, or as his specific needs seem to demand. The primer of philosophy is its history, and the natural way is to read this first. To follow this natural course makes of philosophy an inductive science.

Students choosing philosophy as their major department will be expected to take at least three term hours in each of these subjects, History of Philosophy, Logic, and Psychology, and to make up three years of continuous work. The department offers half-year subjects in every case. Philosophy may be taken by all students except Freshmen and first-year Specials.

The Philosophical Conference holds public meetings at least three times during the year. It gives the opportunity to the students of discussing philosophical subjects collateral to the regular work, and sometimes invites eminent persons to address it on special subjects.

SUBJECTS.

*1. Introductory courses. History of Philosophy; the pre-Socratic Greeks: Socrates, Plato, and Aristotle; the periods of the Renaissance (1500–1689) and the Enlightenment (1689–1781); German Idealism from Kant to Hegel (1781–1820), and Modern Evolution Theories; lectures and examinations. *Monday*, *Wednesday*, *and Friday at* 9.45 (*first half-year*). PROFESSOR CUSHMAN.

** 2. Psychology,— lectures and elementary experiments; the relation between mind and body, introduced by a short study of the anatomy of the brain. *Monday*, *Wednesday*, *aud Friday at* 9.45 (*second half-year*). PROFESSOR CUSHMAN.

[* 3. Logic, especially Deductive, with an elementary consideration of fallacies. *Tuesday*, *Thursday*, *and Saturday at* 10.45 (*second half-year*). PROFESSOR SHIPMAN.]

[4. Logic (advanced), especially Inductive. *Tuesday*, *Thursday*, *and Saturday at* 10.45 (*first half-year*). PROFESSOR SHIPMAN.]

Much attention is paid to practical exercises. Philosophy 4 is open to those students who have, with distinction, completed Philosophy 3. In it fallacies are discussed at much greater length, and recent modifications of logical doctrine are examined.

5. Ethics, historical and constructive; theses, lectures and text-book. *Tuesday*, *Thursday*, *and Saturday at* 9.45 (*first half-year*). PROFESSOR CUSHMAN.

6. Ethics, practical; contemporary problems, education, charities, temperance, socialism. *Tuesday*, *Thursday*, *and Saturday at* 10.45 (*second half-year*). PROFESSOR TOUSEY.

Philosophy 6 follows 5 in natural sequence.

7. The Philosophy of Religion; classification of theological questions, with critical and constructive work by the class; lectures; wide reading. *Monday*, *Wednesday*, *and Friday at* 3 (*first half-year*). PROFESSOR KNIGHT.

8. Metaphysics. The fundamental questions of philosophy, such as personality, immortality, evil, theism, causation, nature, social consciousness in reference to the points of view of modern empirical science, religious mysticism and philosophical idealism; theses, lectures, text-book. *Monday*, *Wednesday*, *and Friday at* 10.45 (*first half-year*). PROFESSOR CUSHMAN.

[9. Descartes, Leibnitz, Spinoza; critical and expository reading of the authors; lectures and theses. *Monday, Wednesday, and Friday at* 10.45 (*second half-year*). PROFESSOR CUSHMAN.]

[This subject will be given in 1900-01.]

[10. English Philosophy from Hobbes to Hume. Critical and expository reading of the authors; lectures and theses. *Monday, Wednesday, and Friday at* 10.45 (*second half-year*).
PROFESSOR CUSHMAN.]

[This subject will be given in 1901-1902.]

11. Kant, critical and expository reading of the authors; lectures and theses. *Monday, Wednesday, and Friday at* 10.45 (*second half-year*). PROFESSOR CUSHMAN.

[This subject will be given in 1899-1900.]

HISTORY.

ASSISTANT PROFESSOR START.

The department aims to develop the idea of unity in the history of mankind, and to make the study of all history of practical value through its relation to present-day problems. To this end a thorough scientific knowledge of essential facts, and the arrangement of these facts in their true proportions, is sought, while in some subjects opportunity is offered for individual work and closer examination of details. History 1 is the introductory subject by which the student is prepared for more specialized work. History 2 opens to students well qualified for historical study an opportunity to develop their knowledge of important epochs in the history of Europe. History 3 is devoted to England, and 4, 5, and 6 to our own country. Opportunity is thus given during the undergraduate course to obtain a conspectus of those fields of history most important to the American student. The method of work is briefly explained in connection with the appended statement of subjects.

Major students will in most cases be required to choose their collateral subjects in the fields of Political Science or Philosophy, though variations may be made when it seems advisable. English Literature is a natural collateral for those working along the lines of English history. Political Science 2 and 5 are essentially historical. A reading knowledge of French and German is always useful for the student of history, and is necessary for anything approaching a thorough study of continental European history.

SUBJECTS.

**1. General European History. A study of the elementary principles of historical science and of the outlines of European history to 1815. Two lectures weekly, class discussions, collateral reading, and practice work. *Tuesday*, *Thursday*, *and Saturday at* 10.45.

ASSISTANT PROFESSOR START.

History 1 must precede all other subjects in History. It will not be accepted for an advanced degree. It is open to any student who has passed the requirements in History for admission to the college. A considerable amount of time will be given to the Middle Ages and the formative influences from which modern Europe has developed.

2. Studies of Periods in European History. Individual work in libraries and with the instructor. *Six hours* (*counting three term hours*) *a week. Hours may be arranged for each student.*

ASSISTANT PROFESSOR START.

The work will consist of thorough study of the period chosen, preparation and arrangement of notes, making of maps, charts, and bibliographies; and possibly a thesis. Periods suggested for study in 1899–1900 are: (*a*) The Renaissance; (*b*) The Eighteenth Century; (*c*) A Topic in Mediæval History; (*d*) The Reformation; (*e*) The Nineteenth Century.

3. The History of England. *Tuesday*, *Thursday*, *and Saturday at* 9.45 (*first half-year*). MR. BAILEY.

[4. American Colonial History. Spain, France, and England in the New World. The formation and social and political life of the colonies. Lectures, collateral readings, and topical reports. Open to students who have taken History 1. *Monday*, *Wednesday*, *and Friday at* 9.45 (*second half-year*). ASSISTANT PROFESSOR START.]

5. Political and Constitutional History of the United States. The Revolution, formation of the Union, development of the Nation under the Constitution. Lectures, study of sources and literature, theses, and topical work. Open to students who have taken History 1 and 4. *Monday, Wednesday*, *and Friday at* 10.45.

ASSISTANT PROFESSOR START.

History 4 will be consolidated with 5 for 1900-1901. The collateral reading and topical work involve thorough study of the principal literature of American history and of the leading historical documents. While primarily for undergraduates, this subject may be taken by graduates, and may count toward an advanced degree, but in such a case it is expected that the subject will be passed with high credit, and that some additional special work will have been done.

[6. Seminary in American History. Research work with the sources. *Full subject; meetings weekly or fortnightly, at the pleasure of the instructor.* ASSISTANT PROFESSOR START.]

In the seminary each student becomes an active historical investigator, examining the sources upon which history is based, and obtaining by personal experience an insight into the principles of research and criticism. Work of sufficient value done in the seminary will be preserved in the college library. Only students who have done with credit at least nine term hours of work in the department, including History 4, are eligible.

[7. Seminary for the study of the Philosophy and Methods of History. *Weekly meetings, to be arranged with the instructor.* ASSISTANT PROFESSOR START.]

This seminary will be opened whenever two or more properly qualified candidates present themselves. It is intended primarily for graduates, especially for those who intend to teach history, but undergraduates of high standing, who have passed in not less than twelve term hours of work in the department, may be admitted by permission of the instructor. The members will work on independent but cooperative lines, and much attention will be given to methods of historical study and teaching. The hours of meeting will be so arranged that teachers of history in the schools may join the seminary.

8. The Comparative History of Religions. Egypt, Babylon, Nineveh; Parseeism, Hinduism, Buddhism, Confucianism, Mohammedanism; with a study of the civilizations represented by these religions. *Tuesday, Thursday, and Saturday at* 11.45 (*first half-year*). PROFESSOR KNIGHT.

POLITICAL SCIENCE.

PRESIDENT CAPEN AND PROFESSOR METCALF.

The subjects in the department of Political Science are, for the sake of clearness, divided into two groups: Government and Economics.

Government 1 is introductory, the aim being a general acquaintance with the elements of political science. In the study of Ancient Law the growth of jural conceptions is studied. International Law follows in the second term.

In the division of Economics the aim is to provide, by systematically arranged courses of instruction, a training in the most important branches of political economy, beginning with the elements of the science, and passing by degrees to work of the investigative order. Economics 1 is introductory to the other courses, but endeavors, at the same time, to satisfy the wants of those who seek simply a general knowledge of Economics. The advanced subjects (2, 3, 4, and 5) presuppose preparation on the part of the student. A knowledge of general, constitutional, and political history (such as is given in courses 1 and 5 in history) is desirable.

Government.

1. Elements of Political Science. Lectures, collateral reading, and reports. *Monday*, *Wednesday*, *and Friday at* 11.45.

[This subject will be given in 1900-1901, by Dr. Metcalf.]

ASSISTANT PROFESSOR START.

2. Ancient Law; Roman Law. Lectures, text-book work, and discussions. *Tuesday*, *Thursday*, *and Saturday at* 9.45 (*first half-year*). PRESIDENT CAPEN.

3. International Law. Lectures, text-book work, and discussions. *Tuesday*, *Thursday*, *and Saturday at* 9.45 (*second half-year*).

PRESIDENT CAPEN OR PROFESSOR METCALF.

Economics.

1. Principles of Political Economy. A General Course in the Elements of Economics. Lectures, text-book work, discussions, and frequent written tests. *Tuesday*, *Thursday*, *and Saturday at* 8.45.

PROFESSOR METCALF.

2. Modern Economic History, with special reference to the Economic History of the United States. Lectures, collateral readings, and theses. *Tuesday*, *Thursday*, *and Saturday at* 10.45.

PROFESSOR METCALF.

Subject 2 must be preceded by Economics 1 or its equivalent, and should be preceded by Government 1, and History 1 and 5.

[3. Principles of Public Finance. Open to those who have had Economics 4 and 5. Given in 1900-1901. Lectures, text-book work, collateral readings, and reports. *Hours to be arranged.*

PROFESSOR METCALF.]

[4. History and Literature of Political Economy. Open to advanced students. Lectures, collateral reading, and reports. Economics 4 alternates with course 3. It will not be given in 1900-1901. *Hours to be arranged.* PROFESSOR METCALF.]

[5. Seminary in Government and Economics. *Hours and subjects to be arranged with the instructors.*]

MATHEMATICS.

PROFESSOR BROWN.

The study of Mathematics is required through the first year. The branches taught are: Algebra, through the subjects included in most college text-books preceding the theory of equations; Solid and Spherical Geometry; Plane Trigonometry, with its applications. Two objects are kept constantly in view: first, to acquire and hold certain mathematical facts for future use; secondly and mainly, to train the mathematical faculties so that the student may acquire the ability to deduce mathematical truths from those previously established. The classroom work of the instructors is a combination of lectures with questioning of the students to ascertain that the points presented are duly comprehended.

An opportunity to continue the study of Algebra and also a course in Determinants are offered at the middle of the first year. Plane Analytic Geometry is offered as an elective for the first half of the second year. This study may be continued with higher plane curves and Geometry of three dimensions during the second half of the second year. Differential and Integral Calculus is required for three half-years in the Engineering courses, and the subject is open as an elective to any student who has taken Plane Analytic Geometry.

SUBJECTS.

1. College Algebra; Solid Geometry; Plane Trigonometry. Applications of Plane Trigonometry. *Monday, Wednesday, and Saturday at* 8.45 (Division 1). *At* 9.45 (Division 2).
PROFESSOR BROWN.

2. Theory of Equations and Elements of Determinants. *Tuesday, Thursday, and Saturday at* 11.45 (*second half-year*).
PROFESSOR BROWN.

3. Plane Analytic Geometry. Open to students who have taken 1. *Monday, Wednesday, and Friday at* 11.45 (*first half-year*).
PROFESSOR BROWN.

4. Spherical Trigonometry; Projections of Triangles; use of Richards's Manual with the Sphere. Open to students who have had 1 (*First half-year.*) PROFESSOR BROWN.

5. Higher Plane Curves; Analytic Geometry of Three Dimensions. *Monday, Wednesday, and Friday at* 11.45 (*second half-year*).
PROFESSOR BROWN.

6. Differential and Integral Calculus. *Three hours a week* (*second half-year*). PROFESSOR BROWN.

7. Differential and Integral Calculus continued. *Three hours a week* (*first half-year*). PROFESSOR BROWN.

8. Differential and Integral Calculus (advanced course). *Two hours a week* (*second half-year*).
PROFESSOR BROWN OR ASSISTANT PROFESSOR WREN.

9. Weld's Theory of Determinants; Hanus's Elements of Determinants. *Three hours a week* (*first half-year*).
ASSISTANT PROFESSOR WREN.

10. Differential Equations. *Two hours a week* (*second half-year*).
PROFESSOR BROWN OR ASSISTANT PROFESSOR WREN.
[See Engineering Courses.]

11. Method of Least Squares. *Two hours a week* (*second half-year*). ASSISTANT PROFESSOR WREN.

12. Quaternions. *Three hours a week* (*first half-year*).
ASSISTANT PROFESSOR WREN.
[See Engineering Courses.]

13. Theory of Functions. *Three hours a week* (*second half-year*).
ASSISTANT PROFESSOR WREN.
[See Engineering Courses.]

[*Drawing* 1 (DESCRIPTIVE GEOMETRY) *is also a distinctively mathematical subject. For further subjects essentially mathematical, see subject* 4 *in the department of Drawing, and subjects* 1 *and* 6 *in the department of Civil and Mechanical Engineering.*]

PHYSICS.

PROFESSOR DOLBEAR.

The work in Physics begins with a consideration of General Physics, this being the subject to be taken by those electing Physics for their prescribed work in science, and the introductory subject for major students in Physics. A text-book is used, critical comments and much additional material are given, and frequent lectures are given with experiments. The aim is to present the science of Physics not as a series of detached subjects, but as a consistent body of doctrine in which mechanical principles hold throughout, and from which all the various phenomena are deducible. Hence in each branch there are frequent returns to these first principles. The rapid development of electrical science having quite outstripped text-books, this subject is treated wholly by lectures.

An elective course is offered of about twenty-five lectures upon the relations of Physics to other branches of natural science, introducing the doctrine of the conservation of energy as applicable to all. After this follows a more extended consideration of the fundamental questions in Physics. Spencer's First Principles is read, and its subject-matter thoroughly discussed.

In the Physical Laboratory beginners are given Stewart and Gee's Practical Physics, first volume, for a guide. They work for the most part independently, and each pursues a given subject till satisfactory results are obtained. Glazebrook and Shaw's Practical Physics is followed on the subjects of sound, heat, and light, Pickering's Manipulation and Kohlrausch's Measurements being also used to a limited extent. In electricity and magnetism Stewart and Gee's second volume is mainly followed, supplemented, in the case of engineering students, by parts of Gray's Absolute Measurements and Kempe's Testing. In all laboratory work each student records methods and results in a suitable note-book, and is encouraged to do a few things well rather than to go carelessly over a larger ground. Students who are preparing themselves to become teachers of Physics have an opportunity to perform most of the experiments needed for illustrating elementary work.

SUBJECTS.

1. General Physics. Lectures, recitations, and experiments. To be taken by students choosing Physics for their prescribed science subject, and introductory to other subjects in Physics. *Monday, Wednesday, and Friday at* 10.45. PROFESSOR DOLBEAR.

2. Experimental Physics for Teachers. *Twice a week (second half-year).* PROFESSOR DOLBEAR.

Open only to those who have taken Physics 1.

3. Electricity. Thompson's Elementary Lessons in Electricity and Magnetism. Lectures and recitations. *Monday, Wednesday, and Friday at* 11.45 *(second half-year).* MR. H. G. CHASE.

4. Physical Laboratory. Mechanics, Sound, Heat, and Light. *Six hours a week (second half-year).* MR. H. G. CHASE.

5. Electricity: Theory of Measurements. *Three hours a week (first half-year).* Electrical Laboratory: Simple Measurements and Tests. *Two hours a week.* MR. H. G. CHASE.

6. Relation of Physics to Sociology. Lectures. *Tuesday and Thursday at* 3 *(first half-year).* PROFESSOR DOLBEAR.

7. Spencer's First Principles. *Tuesday and Thursday at* 3 *(second half-year).* PROFESSOR DOLBEAR.

CHEMISTRY.

PROFESSORS MICHAEL AND DURKEE.

The work in the department begins with Chemistry 1, which is open for election by the students of the courses in Liberal Arts, and is required of engineering students in their second year. The instruction is by means of lectures, recitations, and laboratory work. The lectures, illustrated by numerous experiments, are intended to give a thorough elementary knowledge of theoretical and descriptive inorganic chemistry, including a brief account of the chemistry of the carbon compounds and the principal technical processes. One-half of the time devoted to this subject is given to practical work in the laboratory, and the student has an opportunity to verify some of the chemical theories, and to become familiar with substances and their chemical behavior. The lectures are supplemented by recitations and written examinations. An opportunity to continue the study of theoretical and inorganic chemistry is afforded by subjects 11 and 12. Those who wish may supplement the above course of lectures with laboratory practice by taking subject 14, in which some of the more difficult inorganic experiments and preparations are performed.

The instruction in Qualitative Analysis extends through a year, and consists of two subjects (2 and 3), taught in part by lectures and recitations, but mainly by work in the laboratory. During the advanced course the student is required to analyze correctly a large number of mixtures and minerals. Subject 6 is intended to teach the use of the blowpipe in chemistry, together with the tests that are of special value in determinative mineralogy. Crystallography is taken up in connection with this subject. Quantitative Analysis is mainly taught by laboratory practice, in order that the student may attain that skill in manipulation which is necessary for this kind of work. In subject 4 the student is required to analyze the simpler salts and minerals, and in the advanced subject 5, the more complicated minerals, ores, commercial and food products. The analysis of organic substances is included in subject 5. Gas analysis (subject 9) is taught by lectures and laboratory work, principally in the use of technical methods. Assaying (subject 7) is adapted to familiarize the student with the practical methods of sampling and assaying gold, silver, and lead ores. The above subjects cover a comprehensive study of analytical chemistry, and are intended to give the student such a thorough theoretical and practical knowledge as to prepare him for analytical work of any description. The course of lectures for metallurgy (subject 8), with recitations, is intended to give the student a general idea of fuels, ore dressing, refractory building materials, and the more important technical methods of extracting iron, copper, and silver.

The study of Organic Chemistry begins with a course of lectures, illustrated by experiments and recitations, which cover the general principles, methods, and description of the most important organic compounds. For those who wish to specialize in this science an opportunity is given by subject 13, in which by lectures the underlying theories of organic chemistry are fully discussed and the relations between them and organic reactions are explained. The laboratory practice in organic chemistry (subject 15) may be begun at the same time as subject 10, and continued with 13. It includes the methods for determining the physical properties and molecular weights of organic substances and the preparation of compounds. When taken in connection with subject 13, one or more researches of special importance will be repeated by the student. The subjects 12, 13, 14, 15, and 16 may be taken as graduate work.

Subjects 12, 13, 14, and 15 are especially designed to lead up to research work in chemistry, and students who have taken them, with subject 5, are prepared to enter on this line of advanced work. Ample facilities are offered for the successful prosecution of investigations in inorganic and organic chemistry.

Two laboratory hours are equivalent to one term hour, except in the special course in chemistry, for the degree of Bachelor of Science, in which three hours of work in the laboratory count as one term hour. The quantitative and organic laboratories are open from nine to five o'clock daily, Saturday afternoons excepted.

SUBJECTS.

1. General Chemistry. Lectures, recitations, and laboratory work. *Three hours a week.* PROFESSOR DURKEE.

2. Qualitative Analysis. Basic Analysis. *Lectures, laboratory work, and recitations, on Tuesday and Thursday from* 2 *to* 5; *also on Saturday*, 8.45 *to* 11.45, *for students of the Special Course in Chemistry* (*first half-year*). PROFESSOR DURKEE.

3. Qualitative Analysis. Acids; Analysis of Salts, Commercial and Natural Products. *Lectures, laboratory work, and recitations, on Tuesday and Thursday from* 2 *to* 5; *also on Saturday*, 8.45 *to* 11.45, *for students of the Special Course in Chemistry* (*second half-year*). PROFESSOR DURKEE.

4. Quantitative Analysis. Gravimetric and Volumetric Analysis; Analysis of Minerals. *Lectures and laboratory work. Three hours a week.* DR. WILSON.

5. Quantitative Analysis (advanced course). Analysis of Minerals, Ores, Water, Food Products, Organic Analysis. *Laboratory work. Three hours a week.* DR. WILSON.

6. Crystallography and Determinative Mineralogy. Open to students who have taken 1, 2, and 3. *Lectures and Laboratory work. Two hours a week* (*first half-year*). DR. LEIGHTON.

7. Fire Assay. Open to students who have taken 1, 2, 3, and 4. *Two hours a week* (*second half-year*). PROFESSOR DURKEE.

8. Metallurgy. Lectures and recitations. Open to students who have taken 1. *Two hours a week* (*second half-year*). PROFESSOR DURKEE.

9. Gas Analysis. Lectures and laboratory work. Open to students who have taken 1, 2, 3, and 4. *One hour a week.* DR. WILSON.

10. Organic Chemistry. Lectures and recitations. Open to students who have taken 1. *Three hours a week (first half-year).*
Dr. Leighton.

11. Theoretical Chemistry. Lectures and recitations. Open to students who have taken 1. *Two hours a week (second half-year).*
Dr. Leighton.

12. Theoretical and Inorganic Chemistry (advanced course). Lectures and recitations. Open to students who have taken 1 and 11. *Three hours a week (first half-year).* Professor Michael.

13. Organic Chemistry (advanced course). Lectures and recitations. Open to students who have taken 1 and 10. *Three hours a week.* Professor Michael.

14. Laboratory work in Inorganic Preparations. *Hours to be arranged by the instructors.*
Professor Michael and Dr. Leighton.

15. Laboratory work in Organic Analysis; determination of physical constants and molecular weights; preparation of organic compounds. *Hours to be arranged by the instructors.*
Professor Michael and Dr. Leighton.

16. Original Investigations in Chemistry. *Hours to be arranged by the instructor.* Professor Michael.

17. Discussion on chemical subjects and recent investigations. *One hour a week.*

BIOLOGY.

Professor Kingsley.

Instruction in Biology is given both by lectures and by laboratory work, the object being to impart the scientific method of work and thought rather than to cram the student with a large number of unimportant facts. In the laboratory work four hours a week is the minimum, but mere time service is not sufficient; the student is also required to study a selected series of animals to the satisfaction of the instructor in order to obtain a passing mark. All students receiving the rank D will receive credit for work done, but the mark C must be obtained each year in order to continue work in the department.

The equipment of the department is good. There are three well-lighted laboratories furnished with every requisite for good work, including microscopes, microtomes, reagents, etc., as well as abundant material for illustration and dissection. One of the laboratories is devoted to elementary biology, one to advanced undergraduate work, and one to graduate students. There is also a department library containing over 1,100 volumes and over 2,900 pamphlets and parts of volumes, while the college library contains the proceedings of many learned societies, both American and foreign. Besides these, proximity to Boston and Cambridge gives easy access to library facilities unequalled in any other part of America.

SUBJECTS.

1. General Biology. Lectures, *Tuesday and Thursday at* 11.45; laboratory work, *Tuesday and Thursday from* 2 *to* 4.
PROFESSOR KINGSLEY AND DR. LAMBERT.

This subject is required of all who elect work in this department, and is a pre-requisite for the other biological courses and for Geology 2.

2. Morphology of Invertebrates. Lectures, *Monday and Friday at* 4; laboratory work, *Monday and Friday from* 2 *to* 4 (*first half-year*). PROFESSOR KINGSLEY.

3. Morphology of Vertebrates. Continuation of Biology 2, at the same hours (*second half-year*). PROFESSOR KINGSLEY.

4. Elementary Physiology. Lectures, demonstrations, and recitations. *Tuesday*, *Thursday*, *and Saturday at* 8.45 (*first half-year*).
PROFESSOR KINGSLEY.

The students in the Medical Preparatory course take this subject at the Medical School.

Subjects 1 to 4 will not be accepted as work for advanced degrees.

5. Histology; a study of the normal tissues of the vertebrates, including microscopical technique. Lecture, *Monday at* 11.45; laboratory work, *Monday and Friday*, 2 *to* 4 (*first half-year*).
PROFESSOR KINGSLEY.

6. Embryology, chiefly of Amblystoma and Chick. Lecture, *Monday at* 11.45; laboratory work, *Monday and Friday*, 2 *to* 4 (*second half-year*). One lecture and four hours of laboratory work.
PROFESSOR KINGSLEY.

7. Journal Club. Devoted to reading abstracts of recent biological papers, etc. Required of all major students in Junior and Senior years, but does not count toward a degree. *Fortnightly*, *Fridays at* 11.45.

8. Special Work. Six hours of laboratory work for the year in the investigation cf some special problem. PROFESSOR KINGSLEY.

9. General Morphology. Three lectures each week upon the anatomy, physiology, and embryology of selected groups, with discussion of special problems. Open only to advanced students. *Hours to be arranged.* PROFESSOR KINGSLEY.

Subjects 5 to 9 are intended for both graduates and undergraduates.

There is required from all students taking Laboratory Courses a laboratory fee of two dollars per term for each course, payable in advance.

10. Botany. Lectures, *Monday and Friday at* 8.45; laboratory, *Monday and Friday*, 9.45 *to* 11.45. DR. LAMBERT.

GEOLOGY.

For the present the course in Geology will be given in the second half-year. It is required of students in the courses in General Science and in Biology. It is open to others who have passed in Physics 1, Chemistry 1 and 6, and Biology 1.

SUBJECT.

2. Geology. *Tuesday, Thursday, and Saturday at* 9.45 (*second half-year*). PROFESSOR KINGSLEY.

ASTRONOMY.

1. Recitations and Lectures, chiefly on Physical and Descriptive Astronomy, with special attention to the later discoveries, and their interpretation as bearing upon the history of the earth. *Tuesday and Thursday at* 11.45 (*first half-year*). PROFESSOR DOLBEAR.

DRAWING AND SHOPWORK.

PROFESSOR ANTHONY.

Drawing.

The object of the studies pursued in this department is threefold: first, a development of the theory of technical drawing; second, the acquirement of precision and rapidity in the execution of the work; third, a practical application of these principles to the fluent expression of mechanical ideas by means of graphic language. Practice in the attainment of the first is acquired by Freehand and Geometric Drawing and the study of Descriptive Geometry. By means of progressive problems, in which nothing in the nature of a copy is permitted, the student is advanced to the consideration of point, line, and surface from a purely analytic standpoint. The instruction in Descriptive Geometry is given by means of lectures and recitations, accompanied by frequent examinations in the freehand and instrumental construction of the problems. Rapidity of work being attained only through precision, drawings are required to be executed with the greatest possible care and neatness. The theory and execution of a drawing having been mastered, together with the elements of kinematics, the student is directed to make such applications of these principles to the illustration of mechanism as shall enable him graphically to express his ideas in the most simple and direct manner. The machine drawings are made by such systems as would be required in any well-conducted drafting-room, and the most modern methods are employed in the execution of the work and in the forms of graphic expression that may be used. A progressive course in design is pursued preparatory to and in connection with thesis work.

SUBJECTS.

1. Descriptive Geometry. Lectures, recitations, and drawing. *Four hours a week* (*second half-year*).
PROFESSOR ANTHONY.

2. Technical Sketching and Lettering. *Two hours a week* (*first half-year*).
PROFESSOR ANTHONY.

3. Mechanical Drawing. (See Engineering Courses.) *Three hours a week for the year.* PROFESSOR ANTHONY.

4. Kinematics. *Three hours a week* (*first half year*).
PROFESSOR ANTHONY.

5. Machine Drawing (Elementary). *Two hours a week* (*second half-year*). PROFESSOR ANTHONY.

6. Machine Drawing (Advanced). *Two hours a week* (*first half-year*). MR. C. H. CHASE.

7. Elements of Design. *One hour * a week* (*second half-year*).
PROFESSOR ANTHONY.

8. Machine Design (Advanced). *Two hours * a week* (*second half-year*). PROFESSOR ANTHONY.

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* Each hour represents a three-hour period.

Shopwork.

As the engineer, or draftsman, must have clearly in mind the processes by which a design is to become a reality, it is a primary object of the course to familiarize the student with the various processes of construction and the manipulation of materials. The object is not to produce expert workmen, although a reasonable amount of skill is required, but to give such training as will best serve in the direction and supervision of the work of others. The course is progressive, comprising the subjects enumerated below, and maintaining a close relation with the courses in drawing and design. Much of the work in design is executed in the shop from drawings prepared in the drafting-rooms.

SUBJECTS.

1. Carpentry and Turning. *Two periods * a week* (*first half-year*).
MR. C. H. CHASE.

2. Pattern-making and Moulding. *One period a week* (*second half-year*).
MR. C. H. CHASE.

3. Forging. *One period a week* (*second half-year*). —— ——

4. Vise and Machine Tools. *Two periods a week* (*second half-year*).
MR. C. H. CHASE.

5. Project Work. *Three periods a week* (*second half-year*).
MR. C. H. CHASE.

CIVIL AND MECHANICAL ENGINEERING.

PROFESSOR BRAY.

There are offered in this department such selected subjects from the Engineering Courses as may be profitably pursued by students in the courses in Liberal Arts, who have taken the necessary preliminary work in Mathematics, and who may desire to shape their work with reference to pursuing study in Engineering after graduation. Such students will also find subjects adapted to their plans in the departments of Mathematics, Physics, Chemistry, and Drawing. Fuller details of the work in Engineering will be found in the statement of the full Engineering Courses. For all the subjects given below, Algebra, Geometry, and Trigonometry are an indispensable preparation.

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* Three hours each.

SUBJECTS.

1. Land Surveying. Lectures, recitations, and field practice. Plotting and calculating. *Two hours a week* (*first half-year*).
MR. SANBORN.

2. Topography. Lectures, recitations, drawing, and field practice. *Two hours a week.* MR. SANBORN.
This subject must be preceded by 1.

3. City and Mining Surveying. Recitations, field and office work. *Three hours a week* (*second half-year*).
MR. SANBORN.

4. Railroad Surveying. Field practice and office work; drawing and calculating. *Two hours a week* (*first half-year*).
PROFESSOR BRAY.

5. Steam Enginery; practice in the management of engines and boilers, valve-setting, etc. *Three hours a week* (*first half-year*).
PROFESSOR ANTHONY.

6. Applied Mechanics. *Three hours a week* (*second and first half-years*). PROFESSOR BRAY.
Subjects 5 and 6 must be preceded by Calculus.

7. Applied Mechanics (Laboratory). *One hour a week* (*first half-year*). PROFESSOR BRAY.

8. Mechanical Laboratory. *Four hours a week* (*second half-year*). PROFESSOR BRAY.

9. Roads and Railroads, to be taken with 4. *Three hours a week* (*first half-year*); *two hours a week* (*second half-year*).
PROFESSOR BRAY.

10. Hydraulics. *Three hours a week* (*first half-year*).
PROFESSOR BRAY.

11. Bridges and Roofs. *Two hours a week* (*first half-year*).
MR. SANBORN.

12. Masonry Construction. *Three hours a week* (*second half-year*). PROFESSOR BRAY.

ELECTRICAL ENGINEERING.

PROFESSOR HOOPER.

To students in the College of Liberal Arts who may desire to elect advanced work in Electricity, the following subjects are open. Subjects 1, 2, and 3 require a good working knowledge of Algebra and Trigonometry, while 4 and 5 require some acquaintance with Calculus and Differential Equations.

SUBJECTS.

1. Dynamo-Electric Machinery. Recitations and lectures. *Three hours a week* (*second half-year*). PROFESSOR HOOPER.

2. Electrical Calculations. *Two hours a week* (*second half-year*). PROFESSOR HOOPER.

3. Electrical Laboratory (advanced course). *Three hours a week for the year.* PROFESSOR HOOPER.

4. Electricity (advanced work). Alternating currents. *Four hours a week* (*first half-year*); *three hours a week* (*second half-year*). PROFESSOR HOOPER.

5. Theories of Electricity and of Magnetism. *Three hours a week for a half-year.* PROFESSOR HOOPER.

MUSIC.

PROFESSOR LEWIS.

The department offers opportunities to gain a knowledge of musical history and of the principles of composition, as a basis for practical work in music or in musical criticism. The courses in Harmony and in General History of Music may well be taken by students who wish to cultivate their appreciation of music, but have no intention of preparing themselves for professional work in the art.

SUBJECTS.

1. Harmony. Lectures and practical work, based on Chadwick's Manual of Harmony. Collateral reading concerning the lives of Bach, Händel, Haydn, Mozart, and Beethoven. *Tuesday at* 3, *Thursday from* 2 *to* 4. PROFESSOR LEWIS.

An elementary knowledge of piano playing is required of those who take this subject.

2. Counterpoint, Simple and Double. Lectures and Practical work, based on the manuals of Jadassohn, Bridge, and others. Collateral reading concerning the lives of Schubert, Schumann, Mendelssohn, and Wagner. *Three hours a week as arranged by the instructor.* PROFESSOR LEWIS.

A thorough theoretical knowledge of harmony, and much facility

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Monday, Wednesday, Friday. (Odd number groups.)	Tuesday, Thursday, Saturday. (Even number groups.)	Tuesday and Thursday Afternoons. (Even number groups.)

TABULAR VIEW OF PROGRAM GROUPS.

The arrangement of such subjects as have fixed hours assigned to them is shown in the subjoined table. Hours for laboratory work and for subjects not here indicated are to be arranged with the instructors. Subjects in the same group cannot be taken simultaneously.

The groups assigned to Monday, Wednesday, and Friday are indicated by the odd number Roman numerals; those assigned to Tuesday, Thursday, and Saturday, by the even number Roman numerals.

The small Roman numerals (i) and (ii), following the names of half-subjects, indicate the half-year in which they are given.

Monday, Wednesday, Friday. (Odd number groups.)	I.—8.45.	III.—9.45.	V.—10.45.	VII.—11.45.
	English 4 (Monday, i). English 25 (a). French 3. French 4. Mathematics 1 (first division). Biology 10 (lectures Mon. and Fri.).	English 3 (Monday, i). English 16 (Wednesday). German 3. Philosophy, 1 (i), 2 (ii). Mathematics 1 (second division). Biology 10 (laboratory, Mon. and Fri.).	English 11 (Monday). German 3B (Mon. and Fri.). German 5. Philosophy 8 (i), 11 (ii). History 5. Physics 1. Biology 10 (laboratory, Mon. and Fri.).	French 6. Mathematics 3 (i), 5 (ii). English 2. English 7 (Wednesday). English 21. Latin 4. Greek 1. Government 1. Physics 3 (ii). Biology 7 (Fri.). Biology 5, 6 (lecture Monday).
	IX.—2.00.	XI.—3.00.	XIII.—4.00.	
	Greek 2. Biology 2, 3 (laboratory). Biology 5 (laboratory, i). Biology 6 (laboratory, ii).	English 1 (Friday). English 12. French 5. Philosophy 7 (i). Biology 2, 3 (laboratory). Biology 5 (lab., i), 6 (lab., ii).	Greek 9 (Wed. and Fri.). Biology 2, 3 (lectures Mon. and Fri.).	
Tuesday, Thursday, Saturday. (Even number groups.)	II.—8.45.	IV.—9.45.	VI.—10.45.	VIII.—11.45.
	English 26. German 2. German 6. French 2. Economics 1. Biology 4 (i).	German 1. French 1. Latin 2. Greek 1. History 3. Philosophy 5 (i). Government 2 (i). Government 3 (ii). Geology 2 (ii).	English 19. Italian 1. Latin 1. Philosophy 6 (ii). History 1. Economics 2. Fine Arts 2 (Tues. and Sat.).	German 4. Greek 3. History 8 (i). Mathematics 2 (ii). Biology 1 (lectures Tues. and Thu.). Astronomy 1 (i, Tues. and Thu.).
Tuesday and Thursday Afternoons. (Even number groups.)	X.—2.00.	XII.—3.00.	XIV.—4.00.	
	English 15 (Thursday). Oratory 2 (Tuesday). Oratory 3 (Thursday). Chemistry 2 (i). Chemistry 3 (ii). Biology 1 (laboratory). Music 1 (Thursday).	Chemistry 2 (i). Chemistry 3 (ii). Biology 1 (laboratory). Physics 6 (i). Physics 7 (ii). Music 1. Oratory 1 (Thursday).	Chemistry 2 (i). Chemistry 3 (ii).	

in the harmonization of basses and choral melodies, are required of those who take this course. A full equivalent of Music 1 must have been done by students who wish to begin their college work with Music 2.

3. Fugue, Canon, Musical Form, and the Elements of Orchestration. Lectures and practical work, with various manuals for class use and reference. *Three hours a week for the year.* PROFESSOR LEWIS.

Students who elect this subject must have attained grade A or B in Music 2, and must have given evidence of talent in melodic invention. Those who are admitted to the course are required to attend regularly during the year the public rehearsals or concerts of the Boston Symphony Orchestra, and at least eight concerts of chamber-music, as prescribed by the instructor.

4. General History of Music, from the earliest times to the present day, with especial attention to the period since the death of Palestrina. Lectures, with various treatises for reference. *Three hours a week (second half-year) as arranged by the instructor.*
PROFESSOR LEWIS.

5. Special studies in Musical History, in Musical Criticism, or in the development of Musical Form. *Three hours a week (first half-year) as arranged by the instructor.* PROFESSOR LEWIS.

An equivalent of the work of Music 4 and an ability to read with facility German and French are required of students who elect this subject. The same requirement of concert attendance as for Music 3 is made for Music 5. The course may be given in lectures, or may consist of individual work of students under the direction of the instructor.

[6. The Phenomena of Sound in their relation to music and musical instruments. Lectures and experiments. *One hour a week for the second half-year.* PROFESSOR DOLBEAR.]

The first half-year's work in Physics 1 must have been done by those who elect this subject.

THE FINE ARTS.

ASSISTANT PROFESSOR WHITTEMORE.

The department stands collaterally with literature and music — offering an opportunity for the study of the history of painting, sculpture, architecture, and the minor arts.

[1. The History of Greek Art, with an introduction on the Arts

of Egypt, Assyria, and Phœnicia. *Tuesday and Saturday at* 10.45.
ASSISTANT PROFESSOR WHITTEMORE.]

2. The Fine Arts of the Middle Ages and The Renaissance. *Tuesday and Saturday at* 10.45.
ASSISTANT PROFESSOR WHITTEMORE.

PHYSICAL TRAINING.

MR. STROUD AND MISS CARVILL.

Regular exercise in the gymnasium is required three hours a week of all undergraduate students for the two years following entrance, from the middle of November to the middle of March. The work in physical training is optional during the remaining years of the course. The aim of the department is to secure better carriage and more symmetrical development of the body, and to induce a fuller appreciation of the value of systematic exercise. The work prescribed for each student depends on the physical condition, as determined by careful medical examination, measurements, and strength tests. The special exercises of each student are directed by the instructor; the general exercises are in classes. The class work consists of free movements, exercises with wands and light dumb-bells, and on the parallel bars, vaulting-bar, and vaulting-horse. Attention is also given to running, jumping, vaulting, and other healthful athletic sports. It is the intention in all cases to make the exercises of such a character that the weakest as well as the strongest person can perform them with profit.

Courses in Science.

The special courses in General Science, Biology, Chemistry, and Medical Preparatory studies lead to the degree of Bachelor of Science, are entered through Entrance Examination Group V, and are intended for graduates of general high schools who wish to prepare themselves for specialized scientific work. Like the engineering courses, they are placed upon a technical basis, and far less latitude is allowed the student in the choice of subjects than in the courses in Arts and Philosophy, the election being made when the course is chosen. In addition to the studies given below for each course, students must elect other studies in the last two years, so as to make the total one hundred and twenty-eight term hours.

Unless otherwise described, the time assigned to subjects in the subjoined statements is given in term hours. Two laboratory hours ordinarily count as one term hour.

COURSE IN GENERAL SCIENCE.

PROFESSOR KINGSLEY.

Freshman Year.

English 1. Composition. Lectures, discussion of papers. *One hour a week for the first year. Friday at* 2.
ASSISTANT PROFESSOR WHITTEMORE.

German 1. Elementary German. Joynes-Meissner Grammar, with Lewis's Exercises; Bernhardt's Im Zwielicht, II; Riehl, Burg Neideck; Buchheim's Balladen und Romanzen. *Tuesday*, *Thursday*, *and Saturday at* 9.45. PROFESSOR FAY.

or

German 2. Intermediate German. Reading, Grammar, and Composition. Review of grammatical principles, especially with reference to syntax. Reading of modern prose and poetry, such as Riehl, Der Fluch der Schönheit; Freytag, Aus dem Staat Friedrichs des Grossen; Scheffel, Der Trompeter von Säkkingen. *Tuesday*, *Thursday*, *and Saturday at* 8.45. PROFESSOR FAY AND MR. DEMETER.

French 1. Elementary French. The essentials of grammar, with composition; Grandgent's Short Grammar, with College Exercises; a French Reader; reading of short works of modern authors in prose and verse. *Tuesday, Thursday, and Saturday at* 9.45.

PROFESSOR LEWIS AND MR. EARLE.

or

French 2. Intermediate French. Reading, Grammar, and Composition. Review of grammatical principles, especially with reference to syntax; exercise in composition; short weekly themes; reading of modern fiction and drama, such as Merimée's Colomba and Sandeau's Mademoiselle de la Seiglière. *Tuesday, Thursday, and Saturday, at* 8.45. PROFESSOR LEWIS AND MR. EARLE.

The order in which French and German are followed depends upon the language submitted for admission to the College. A student admitted with French will take French 2 and German 1, or with German will take German 2 and French 1.

Physics 1. General Physics. Lectures, recitations, and experiments. *Monday, Wednesday, and Friday at* 10.45.

PROFESSOR DOLBEAR.

Chemistry 1. General Chemistry. Lectures, recitations, and laboratory work. *Three hours a week.* PROFESSOR DURKEE.

Biology 2. General Biology. Lectures, *Monday and Friday at* 11.45; laboratory work, *Tuesday and Thursday from* 2 *to* 4.

PROFESSOR KINGSLEY.

Physical Training.

Sophomore Year.

English 2. The Theory and Practice of Composition. Lectures and reading; criticism and discussion of themes. *Monday, Wednesday, and Friday at* 11.45. ASSISTANT PROFESSOR WHITTEMORE.

German 2. As above.

or

German 3. First half-year. Course for the rapid reading of modern prose. Scheffel, Ekkehard; Freytag. *Monday, Wednesday, and Friday at* 9.45. PROFESSOR FAY.

and

Biological German. Second half-year. Reading of some important biological work intended to familiarize the student with the vocabulary of biology. *Two hours a week.* PROFESSOR KINGSLEY.

French 2. (For those entering with German.)

Biology 3. General Biology. Lectures, *Monday and Friday at* 4; laboratory work (four hours), *Monday, Wednesday, and Friday from* 2 *to* 4. PROFESSOR KINGSLEY.

Mathematics 1. College Algebra; Solid Geometry; Plane Trigonometry. Applications of Plane Trigonometry. *Monday, Wednesday, and Friday at* 8.45 (Division 1); *at* 9.45 (Division 2).
PROFESSOR BROWN.

Chemistry 2. Qualitative Analysis. Basic Analysis. Lectures, laboratory work, and recitations. *Tuesday and Thursday from* 2 *to* 5 (*first half-year*). PROFESSOR DURKEE.

Chemistry 3. Qualitative Analysis. Acids; Analysis of Salts, Commercial and Natural Products. Lectures, laboratory work, and recitations. *Tuesday and Thursday from* 2 *to* 5 (*second half-year*).
PROFESSOR DURKEE.

Physical Training.

Junior Year.

English 11. General View of English Literature. Lectures, examinations, and required reading. *Monday at* 10.45.
MR. EARLE, ASSISTANT PROFESSOR WADE,
PROFESSOR KNIGHT, PROFESSOR MAULSBY.

German 3 and Biological German (for those entering with French), as above.

Physics 4. Physical Laboratory. Mechanics, Sound, Heat, and Light. *Six hours a week* (*second half-year*). MR. H. G. CHASE.

Chemistry 10. Organic Chemistry. Lectures and recitations. Open to students who have taken 1. *Three hours a week* (*first half-year*).

Biology 4. Elementary Physiology. Lectures, demonstrations, and recitations. *Tuesday, Thursday, and Saturday at* 8.45 (*first half-year*). PROFESSOR KINGSLEY.

Biology 5. Histology. A study of the normal tissues of the vertebrates, including microscopical technique. One lecture and four hours of laboratory work. *Hours to be arranged by the instructor.*
PROFESSOR KINGSLEY.

Biology 6. Embryology. One lecture and four hours of laboratory work. *Hours to be arranged by the instructor.*
PROFESSOR KINGSLEY.

Senior Year.

Philosophy 1. Introductory course. History of Philosophy. Lectures and examinations. *Monday, Wednesday, and Friday at* 9.45 (*first half-year*). PROFESSOR CUSHMAN.

Philosophy 2. Psychology. Lectures and elementary experiments. *Monday, Wednesday, and Friday at* 9.45 (*second half-year.*)
PROFESSOR CUSHMAN.

Chemistry 6. Crystallography and Determinative Mineralogy. Lectures and laboratory work. *Two hours a week* (*first half-year*).
PROFESSOR DURKEE.

Geology 2. Geology. *Tuesday, Thursday, and Saturday at* 9.45.
PROFESSOR KINGSLEY.

Special work (six term hours) in Biology, Chemistry, or Electricity.

COURSE IN BIOLOGY.

PROFESSOR KINGSLEY.

Freshman Year.

As in the Freshman year of the course in General Science.

Sophomore Year.

As in the Sophomore year of the course in General Science.

Junior Year.

English 11, German 3 (first half-year), and **Biological German** (second half-year, for those entering with French), **Biology 4, 5, and 6**, as in the Junior year of the course in General Science.

Philosophy 1 and 2, as in the Senior year of the course in General Science.

Chemistry 10. Organic Chemistry. Lectures and recitations. *Three hours a week* (*first half-year*). DR. LEIGHTON.

Senior Year.

Chemistry 6 and Geology 2, as in the Senior year of the course in General Science.

Biology 9. General Morphology. Three lectures each week upon the anatomy, physiology, and embryology of selected groups, with discussion of special problems. PROFESSOR KINGSLEY.

Human Anatomy (at the Tufts Medical School).

Special Research in Biology, including dissertation. *Twelve hours.*

MEDICAL PREPARATORY COURSE.

PROFESSOR KINGSLEY.

Freshman Year.

As in the Freshman year of the course in General Science.

Sophomore Year.

As in the Sophomore year of the course in General Science.

Junior Year.

As in the Junior year of the course in Biology.

Senior Year.

Economics 1. Political Economy. Text-book work, lectures, and independent investigation dealing with the history of economics, theories of production, consumption, and distribution; problems of profits, wages, and labor. *Tuesday, Thursday, and Saturday at* 8.45. PROFESSOR METCALF.

[**Philosophy 3.** Logic, especially deductive. *Tuesday, Thursday, and Saturday at* 10.45 (*second half-year*). PROFESSOR SHIPMAN.]

Philosophy 5. Ethics, historical and constructive. Theses, lectures, and text-book. *Tuesday, Thursday, and Saturday at* 9.45 (*first half-year*). PROFESSOR CUSHMAN.

Human Anatomy and Physiology (at Tufts Medical School).

Medical Chemistry (at Tufts Medical School).

COURSE IN CHEMISTRY.*

PROFESSOR DURKEE.

Freshman Year.

English 1. Composition. Lectures, discussion of papers. *One hour a week.* ASSISTANT PROFESSOR WHITTEMORE.

German 1. Elementary German. Joynes-Meissner Grammar, with Lewis's Exercises; Bernhardt's Im Zwielicht, II; Riehl, Burg Neideck; Buchheim's Balladen und Romanzen. *Tuesday, Thursday, and Saturday at* 9.45. PROFESSOR FAY.

or

German 2. Intermediate German. Reading of modern prose and poetry. Grammar and composition. *Tuesday, Thursday, and Saturday at* 8.45. PROFESSOR FAY AND MR. DEMETER.

Those entering with German will take German 2. Others will take German 1.

Mathematics 1. Algebra, Solid Geometry, and Trigonometry. *Three hours a week.* PROFESSOR BROWN.

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* For program hours, when these are not given, see the statement of hours under the several departments.

Physics 1. General Physics. Lectures, recitations, and experiments. *Monday, Wednesday, and Friday at* 10.45.
PROFESSOR DOLBEAR.

Chemistry 1. Inorganic Chemistry. Lectures, recitations, and laboratory work. *Three hours a week.* PROFESSOR DURKEE.

Drawing. *Three hours a week (first half-year).*
PROFESSOR ANTHONY.

Elective. *Three hours a week (second half-year).*

Physical Training.

Sophomore Year.

English 2. Theory and Practice of Composition. Lectures and readings; criticism and discussion of themes. *Monday, Wednesday, and Friday at* 11.45. ASSISTANT PROFESSOR WHITTEMORE.

German 2 (as above), *or*

French 1. Elementary French. The essentials of grammar with composition; reading of short works of modern authors in prose and verse. *Tuesday, Thursday, and Saturday at* 9.45.
PROFESSOR LEWIS AND MR. EARLE.

French 1 will be taken by those who entered without French. Others will take German 2.

Physics 4. Physical Laboratory. Mechanics, Sound, Light, and Heat. *Three hours a week (second half-year).* MR. H. G. CHASE.

Chemistry 2. Basic Qualitative Analysis. Laboratory work, with lectures and recitations. *Three hours a week (first half-year).*
PROFESSOR DURKEE.

Chemistry 3. Qualitative Analysis of Acids, Salts, Commercial and Natural Products. Laboratory work, with recitations. *Three hours a week (second half-year).* PROFESSOR DURKEE.

Chemistry 4. Quantitative Analysis, Gravimetric and Volumetric; Analysis of Minerals. Lectures and laboratory work. *Three hours a week.* DR. WILSON.

Chemistry 10. Organic Chemistry. Lectures and recitations. *Three hours a week (first half-year).* DR. LEIGHTON.

Chemistry 11. Theoretical Chemistry. Lectures and recitations. *Three hours a week.* DR. LEIGHTON.

Physical Training.

Junior Year.

Chemistry 5. Quantitative Analysis (advanced). Analysis of Minerals, Ores, Water, Food Products, and Organic Analysis. *Three hours a week.* DR. WILSON.

Chemistry 6. Crystallography and Determinative Mineralogy. Lectures and recitations. *Two hours a week (first half-year).* DR. LEIGHTON.

Chemistry 8. Metallurgy. Lectures and recitations. *Two hours a week.* PROFESSOR DURKEE.

Chemistry 12. Theoretical and Inorganic Chemistry (advanced). Lectures and recitations. *Three hours a week (first half-year).* PROFESSOR MICHAEL.

Chemistry 13. Organic Chemistry (advanced). Lectures and recitations. *Three hours a week.* PROFESSOR MICHAEL.

Chemistry 14. Laboratory work with inorganic preparations. *Two hours a week (first half-year).* PROFESSOR MICHAEL AND DR. LEIGHTON.

Chemistry 15. Laboratory work in organic analysis; determination of physical constants and molecular weights; preparation of organic compounds. *Three hours a week (second half-year).* PROFESSOR MICHAEL AND DR. LEIGHTON.

Biology 1. General Biology. Lectures and laboratory work. *Three hours a week.* PROFESSOR KINGSLEY.

Biology 4. Elementary Physiology. Lectures, demonstrations, and recitations. *Three hours a week (first half-year).* PROFESSOR KINGSLEY.

Elective. *Three hours a week (second half-year).*

Senior Year.

Economics 1. Political Economy. Text-book work, lectures, and independent investigation dealing with the history of economics, theories of production, consumption, and distribution; problems of profits, wages, and labor. *Tuesday, Thursday, and Saturday at* 8.45. PROFESSOR METCALF.

Chemistry 7. Fire Assay. *Two hours a week (second half-year).* PROFESSOR DURKEE.

Chemistry 9. Gas Analysis. Lectures and laboratory work. *One hour a week (first half-year).* DR. WILSON.

Chemistry 13. Organic Chemistry (advanced). Lectures and recitations. *Three hours a week (first half-year).*

PROFESSOR MICHAEL.

Elective. *Three hours a week (first half-year).*

Research and Thesis. *Four hours a week (first half-year); ten hours a week (second half-year).* PROFESSOR MICHAEL.

Department of Engineering.

ADMINISTRATIVE BOARD.

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Instructor in Electrical Engineering.

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Instructor in Physical Training.

VIRGIL L. LEIGHTON, A.M., PH.D., Dean Hall, 9.
Instructor in Organic Chemistry.

SAMUEL C. EARLE, A.M., Franklin St., Somerville.
Instructor in French.

Engineering Courses.

Four courses are provided in Engineering, each requiring four years' study and leading to the degree of Bachelor of Science.

The courses are: Civil Engineering, Mechanical Engineering, Electrical Engineering, and Chemical Engineering. It is believed that four years spent mainly upon technical subjects, yet providing opportunity for such language study as will enable the student to become familiar with foreign books of scientific value, will furnish a solid foundation for advanced theoretical attainment and professional skill. Considerable freedom is allowed in the choice of electives during the Junior and Senior years.

The program is so arranged as to require of each student fifty hours' work per week. This includes the time necessary for the recitation and its preparation, together with hours for laboratory and shop work.

The subjects of instruction for the Freshman year are alike for all courses. The outlines of the courses for the three following years are tabulated under the heads of Civil Engineering, page 102, Mechanical Engineering, page 104, Electrical Engineering, page 106, Chemical Engineering, page 108.

ENGINEERING COURSES.

Freshman year, alike for all courses.

First Term.	No.	Page.	Second Term.	No.	Page.
Algebra	1	110	Analytical Geometry	5	110
Trigonometry	3	110	Descriptive Geometry	21	112
Mechanical Drawing	20	112	Mechanical Drawing	20	112
Lettering	22	112	Pattern Making	42	114
Carpentry, Turning, and Foundry	40	114	Physics	70	118
Physics	70	118	English	140	128
English	140	128	French or	161	130
French or	161	130	German	166	130
German	166	130	Physical Training	185	130
Physical Training	185	130			

CIVIL ENGINEERING.

The four years' course leading to the degree of Bachelor of Science in Civil Engineering is designed to give a thorough grounding in the principles underlying all professional engineering. Instruction is given by means of text-books, lectures, laboratory work, and practice in the field and drafting-room. Recitations, whether upon lectures or text-books, are intended to secure thoroughness. This is best accomplished by numerous practical applications rather than by the exclusive study of theory. It is expected that the student will devote at least two hours to the preparation of each recitation. Specialization is not allowed to encroach upon the time required for the training in fundamental principles, and only in the thesis work of the Senior year can it be systematically carried on. The subject of the thesis is selected by the student under the advice of his professor.

In the Junior and Senior years the student is allowed considerable freedom in electing courses from other departments. By this means he may broaden his engineering education or anticipate some of the more special work of his Senior year.

The course comprises a very thorough training in Mathematics, extending over the first three years, and allowing for electives in the Senior year. English, Modern Language, Chemistry, and Physics are pursued during the first two years and during a part of the third. The more elementary technical training is also given during this period. This is followed by work of a distinctly engineering character, including Surveying, Hydraulics, Highways, Railroads, Bridges, Masonry, Applied Mechanics, Graphic Statics, and Structural Design.

CIVIL ENGINEERING.

Freshman year alike for all courses. See page 101.

SOPHOMORE.

FIRST TERM.	No.	Page.	SECOND TERM.	No.	Page.
Calculus	7	110	Calculus	7	110
Technical Sketching	23	112	Forging	44	114
Mechanism	25	112	General Chemistry	50	116
General Chemistry	50	116	Physical Laboratory	72	118
Surveying	90	122	Surveying	91	122
English	141	128	English	141	128
French or	162	130	French or	162	130
German	167	130	German	167	130
Physical Training	185	130	Physical Training	185	130
			Machine Drawing (elective)	26	112

JUNIOR.

FIRST TERM.	No.	Page.	SECOND TERM.	No.	Page
Calculus	8	110	Differential Equations	9	110
Qualitative Analysis	52	116	Electrical Laboratory	73	118
Electrical Laboratory	73	118	Topography	92	122
Topography	92	122	Masonry	111	124
Pure Mechanics	112	124	Applied Mechanics	113	124
Steam Engine	120	126	Mechanical Laboratory	114	124
English Literature	146	130	English Literature	146	128
One of the following electives:			*Two of the following electives:*		
Machine Drawing	26	112	Machine Drawing	26	112
Machine Shop	45	114	Machine Shop	45	114
Electricity and Magnetism	74	118	Dynamo Electric Machinery	77	118
English		128	Metallurgy	57	116
Modern Languages		130	English		128
			Modern Languages		130

SENIOR.

FIRST TERM.	No.	Page.	SECOND TERM.	No.	Page.
Railroad Surveying	94	122	Highways	93	122
Railroad Engineering	95	122	Railroad Engineering	95	122
Roofs and Bridges	97	122	Structural Design	115	126
Hydraulics	110	124	Thesis		
Structural Design	115	126	*Two of the following electives:*		
Political Economy	180	130			
One of the following electives:			Mathematics		112
			Quantitative Analysis	61	116
Mathematics		110	Applied Chemistry	65	116
Quantitative Analysis	61	116	Assaying	67	116
Mineralogy	59	116	Theoretical Chemistry	69	116
Gas Analysis	63	116	Telegraph and Telephone	87	120
Electricity	82	118	Higher Surveying	96	122
Graphic Statics	99	124	Bridge Design	98	122
English		128	English		128
Modern Languages		130	Modern Languages		130

MECHANICAL ENGINEERING.

It is the aim of this department to so instruct the student in the various subjects that he will be enabled to apply scientific principles to the design of a machine or the proper arrangement of any mechanical plant. In the earlier part of his studies the work common to all engineering courses embraces the careful study of Mathematics, Physics, and Chemistry, which have important bearing upon his subsequent study of the properties of materials used by the engineer. Elementary Technical Drawing and Descriptive Geometry receive careful attention at the beginning of the course. The latter is further developed in its application to practical problems and the study of mechanism.

A systematic study of steam and its application involves much of the Junior and Senior course. The principles involved in the generation and application of power, the management of a boiler and engine, the setting of valves, and use of the indicator, are carefully considered. This is followed by a brief course in Thermodynamics, including the mechanical theory of heat, property of gases and steam. Steam Engineering includes the study of the steam-engine, compound and multiple expansion, and of steam boilers of various types; the dimensions for developing a required power; the material and sizes of parts requisite for strength and endurance; the effect and balance of reciprocating parts and the various kinds of valve motions. Practice is given in engine and boiler testing, and a design with working drawings is required of each student.

The courses also comprise much of electrical engineering, and elective work in civil engineering is also open to the student of this department.

Instruction in Carpentry, Wood-turning, Moulding, Pattern-making, Forging, Vise, and Machine-tool work is given during the course.

MECHANICAL ENGINEERING.

Freshman year alike for all courses. See page 101.

SOPHOMORE.

First Term.	No.	Page.	Second Term.	No.	Page.
Calculus	7	110	Calculus	7	110
Technical Sketching	23	112	Machine Drawing	26	112
Mechanism	25	112	Forging	44	114
General Chemistry	50	116	General Chemistry	50	116
Surveying	90	122	Physical Laboratory	72	118
English	141	128	English	141	128
French or	162	130	French or	162	130
German	167	130	German	167	130
Physical Training	185	130	Physical Training	185	130
			Surveying (elective)	91	122

JUNIOR.

First Term.	No.	Page.	Second Term.	No.	Page.
Calculus	8	110	Differential Equations	9	110
Machine Drawing	27	112	Machine Design	28	112
Qualitative Analysis	52	116	Machine Shop	45	114
Electrical Laboratory	73	118	Electrical Laboratory	73	118
Pure Mechanics	112	124	Applied Mechanics	113	124
Steam Engine	120	126	Mechanical Laboratory	114	124
English Literature	146	128	Steam Engineering	121	126
One of the following electives:			English Literature	146	128
Electricity and Magnetism	74	118	*One of the following electives:*		
Topography	92	122	Dynamo Electric Machinery	77	118
English		128	Topography	92	122
Modern Languages		130	Masonry	110	124
			English		128
			Modern Languages		130

SENIOR.

First Term.	No.	Page.	Second Term.	No.	Page.
Machine Design	29	112	Engineering Laboratory	123	126
Hydraulics	110	124	Structural Design	115	126
Steam Engineering	122	126	Thesis		
Political Economy	180	130	*Two of the following electives:*		
Two of the following electives:			Mathematics		110
Mathematics		110	Quantitative Analysis	61	116
Quantitative Analysis	61	116	Applied Chemistry	65	116
Gas Analysis	63	116	Theoretical Chemistry	69	116
Electricity	82	120	Electricity	83	120
Roofs and Bridges	97	122	Telegraph and Telephone	87	
Graphic Statics	99	124	Bridge Design	98	122
English		128	English		128
Modern Languages		130	Modern Languages		130

ELECTRICAL ENGINEERING.

The aim of this course is to fit men to deal intelligently with electrical problems likely to be presented to the practical engineer.

With this end in view, Mathematics and Drawing are pursued through nearly the entire course.

Physics and Mechanics, both pure and applied, receive much attention, while more than half of the Senior year is devoted to the study of Electricity, by means of practical work in the Electrical Laboratory, together with recitations and lectures on the principles involved. The purely electrical work extends over the Junior and Senior years of the course, the Junior year being devoted to the more elementary theory and the practice of the simpler tests and measurements, the Senior year to the more advanced theory and the practice of the more complex tests and measurements.

The calibration and standardization of electrical instruments receives due attention. The magnetic properties of irons, armature reactions in dynamos, and the efficiency and localization of losses in electrical machinery are carefully studied.

The theory of shunts and the Wheatstone bridge leads to the consideration of the distribution of current and potential in network of conductors.

Much time is given to design and construction. Most students during their course construct or assist in the construction of some piece of electrical machinery of commercial dimensions.

The theory of alternating currents, both single and polyphase, is quite fully developed; and the many important practical problems thus evolved are carefully treated both by numerical computation and by graphic representation.

A few weeks are devoted to the study of Maxwell's theory and its experimental confirmation by Hertz.

ELECTRICAL ENGINEERING.

Freshman year alike for all courses. See page 101.

SOPHOMORE.

First Term.	No.	Page.	Second Term.	No.	Page.
Calculus	7	110	Calculus	7	110
Technical Sketching	23	112	Machine Drawing	26	112
Mechanism	25	112	Forging	44	114
General Chemistry	50	116	General Chemistry	50	116
Surveying	90	122	Physical Laboratory	72	118
English	141	128	English	141	128
French or	162	130	French or	162	130
German	167	130	German	167	130
Physical Training	185	130	Physical Training (elective)	185	130
			Surveying	91	122

JUNIOR.

First Term.	No.	Page.	Second Term.	No.	Page.
Calculus	8	110	Differential Equations	9	110
Machine Drawing	27	112	Machine Design	28	112
Qualitative Analysis	52	116	Electrical Laboratory	73	118
Electrical Laboratory	73	118	Electricity	76	118
Pure Mechanics	112	124	Dynamo Electric Machinery	77	118
Steam Engine	120	126	Applied Mechanics	113	124
English Literature	146	128	Mechanical Laboratory	114	124
**One of the following electives:*			English Literature	146	128
Electricity and Magnetism	74	118	**One of the following electives:*		
Topography	92	122	Machine Shop	45	114
English		128	Metallurgy	57	116
Modern Languages		130	Topography	92	122
			Masonry	111	124
			English		128
			Modern Languages		130

SENIOR.

First Term.	No.	Page.	Second Term.	No.	Page.
Electricity	82	120	Electricity	83	120
Electrical Laboratory	79	118	Electrical Laboratory	79	118
Hydraulics	110	124	Telegraph and Telephone	87	
Political Economy	180	130	Thesis		
**Two of the following electives:*			**Two of the following electives:*		
Mathematics		110	Mathematics		110
Machine Design	29	112	Quantitative Analysis	61	116
Quantitative Analysis	61	116	Applied Chemistry	65	116
Gas Analysis	63	116	Assaying	67	116
Mineralogy	59	116	Theoretical Chemistry	69	116
Mathematics of Alternating Currents	84	120	Highways	93	122
Railroad Engineering	95	122	Railroad Engineering	95	122
Roofs and Bridges	97	122	Bridge Design	98	122
Graphic Statics	99	124	Structural Design	115	126
English		128	English		128
Modern Languages		130	Modern Languages		130

* One and two approved electives.

CHEMICAL ENGINEERING.

This course covers a period of four years, and leads to the degree of Bachelor of Science in Chemical Engineering. The subjects in this course have been arranged to give the training in Mathematics, Physics, Chemistry, and Mechanical Engineering that will assist the graduates of the department in solving the mechanical and chemical problems that may present themselves when chemistry is applied in practical ways. Subjects intended for general training, the greater part of the pure mathematics, and the less technical engineering subjects have purposely been introduced early in the course. This arrangement allows much time for the study of chemical and advanced mechanical engineering subjects in the last two years. The mathematical, physical, and general engineering subjects, as well as subjects that are intended for general culture, correspond, for the most part, to those in the Mechanical Engineering course. In chemistry the subjects are numerous enough to thoroughly train the students in theoretical and descriptive inorganic and organic chemistry, to give them a working knowledge of the different branches of chemical analysis, and to make them familiar with many of the practical applications of chemistry. The chemical and engineering subjects are taught, so far as it is possible, in the laboratories, and excursions are made from time to time to plants where technical chemical operations are performed.

Young men who graduate from the Chemical Engineering course find employment in constructing and operating plants where chemistry is applied commercially, such as gas-works, dye-works, bleacheries, paper and pulp mills, acid and alkali manufactories.

CHEMICAL ENGINEERING.

Freshman year alike for all courses. See page 101.

SOPHOMORE.

FIRST TERM.	No.	Page.	SECOND TERM.	No.	Page.
Calculus	7	110	Calculus	7	110
Technical Sketching	23	112	Machine Drawing	26	112
Mechanism	25	112	Forging	44	114
General Chemistry	50	116	General Chemistry	50	116
Surveying	90	122	Physical Laboratory	72	118
English	141	128	English	141	128
French or	162	130	French or	162	130
German	167	130	German	167	130
Physical Training	185	130	Physical Training	185	130

JUNIOR.

FIRST TERM.	No.	Page.	SECOND TERM.	No.	Page.
Calculus	8	110	Differential Equations	9	110
Qualitative Analysis	52	116	Qualitative Analysis	53	116
Organic Chemistry	55	116	Metallurgy	57	116
Electrical Laboratory	73	118	Electrical Laboratory	73	118
Pure Mechanics	112	124	Applied Mechanics	113	124
Steam Engine	120	126	Mechanical Laboratory	114	124
English Literature	146	128	English Literature	146	128
			* *Two of the following electives:*		
			Machine Shop	45	114
			Dynamo Electric Machinery	77	118
			Masonry	111	124

SENIOR.

FIRST TERM.	No.	Page.	SECOND TERM.	No.	Page.
Machine Drawing	27	112	Quantitative Analysis	61	116
Mineralogy	59	116	Applied Chemistry	65	116
Quantitative Analysis	61	116	Assaying	67	116
Gas Analysis	63	116	Theoretical Chemistry	69	116
Hydraulics	110	124	Thesis		
Political Economy	180	130	* *One of the following electives:*		
* *Two of the following electives:*			Mathematics		110
Mathematics		110	Machine Design	28	112
Electricity	82	120	Structural Design	115	126
Roofs and Bridges	97	122	English		128
Graphic Statics	99	124	Modern Languages		130
English		128			
Modern Languages		130			

* One and two approved electives.

MATHEMATICS.

The required work in Mathematics covers the first three years of the course. During this period the courses pursued are treated with special reference to the demands of the engineering profession. The instruction, while having this end in view, endeavors to train the mathematical faculties so that the student may acquire the ability for research work. On this account, as the course progresses the method of instruction varies gradually from text-book work to lectures by the instructor.

The extent of the course in the required branches is limited to subjects of importance to engineers; viz., in Algebra the subjects usually found in college Algebras previous to the Theory of Equations; in Trigonometry the ordinary formulæ of relations between angles and the applications in the solution of right and oblique triangles; in Analytic Geometry the properties of the straight line and the conic sections; in Calculus the most important principles, such as are embodied in Osborne's Calculus, supplemented by a course of lectures on the applications of the subjects to physical and mechanical phenomena; in Differential Equations the solution and geometrical interpretation of total differential equations of first and second orders.

To those who desire advanced work the following list of electives has been prepared: Advanced Algebra, involving the Theory of Equations and solutions of higher degree equations; Spherical Trigonometry, which is required for those electing Higher Surveying; Solid Analytic Geometry, the Theory of Determinants and Least Squares. Vector Analysis and Theory of Functions are offered to allow the student to obtain the necessary instruments for investigating the more complex physical phenomena.

MATHEMATICS.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
1	Algebra	1	1	4	1	Wren	C, E, M, Ch
2	Advanced Algebra, Theory of Equations	1	2	3	1	Brown	Elective
3	Plane Trigonometry	1	1	2	1	Wren	C, E, M, Ch
4	Spherical Trigonometry	4	1	3	1	Brown	Elective
5	Plane Analytic Geometry	1	2	4	1	Wren	C, E, M, Ch
6	Solid Analytic Geometry	4	2	3	1	Brown	Elective
7	Differential and Integral Calculus	2	1, 2	3	1	Wren	C, E, M, Ch
8	Advanced Differential and Integral Calculus	3	1	2	1	Wren	C, E, M, Ch
9	Differential Equations	3	2	2	1	Wren	C, E, M, Ch
10	Theory of Determinants	4	1	3	1	Wren	Elective
11	Theory of Least Squares	4	2	2	1	Wren	Elective
12	Vector Analysis	4	1	3	1	Wren	Elective
13	Theory of Functions	4	2	3	1	Wren	Elective

DRAWING.

The threefold object of the studies pursued in this department is: first, the acquirement of precision and rapidity in the manipulation of instruments, together with the development of the theory of technical drawing; second, a study of the technique of graphic expression as employed in the modern drafting-room; third, a practical application of the preceding to the investigation of problems susceptible of a graphic solution, including the principles of machine design.

The course in Mechanical Drawing comprises geometrical drawing, the various systems of projection, graphic solution of conic sections, tinting, shading, tracing, etc., the helix and its application to screw-threads and bolts.

Descriptive Geometry is taught by means of lectures, recitations, and the graphic solution of a great number of problems. The course includes the elements of warped surfaces.

Lettering and Technical Sketching are a necessary preparation to the courses in machine and topographical drawing.

Both the Elementary and Advanced Machine Drawing classes are conducted according to the systems of progressive draftsmen. All details are drawn from sketches made by the students, nothing in the nature of a copy being permitted.

Mechanism, theoretical and as applied to the construction of gear-teeth, cams, etc., is designed to involve the minimum of drawing in obtaining a thorough mastery of the principles.

Machine Design is begun by the solution of simple problems involving only the elementary principles of applied mechanics, but requiring careful thought, close observation, and good judgment. A systematic training of the latter is made of first importance. In the advanced course the student is required to design the parts of simple mechanism from data and sketches only, while in thesis design he is made responsible for the entire design and estimates.

DRAWING.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
20	Mechanical Drawing	1	1, 2	3	2	Anthony Sanborn	C, E, M, Ch
21	Descriptive Geometry	1	2	4	1	Anthony Sanborn	C, E, M, Ch
22	Lettering	1	1	1	2	Sanborn	C, E, M, Ch
23	Technical Sketching	2	1	1	2	Anthony	C, E, M, Ch
25	Mechanism	2	1	2 1	1 3	Anthony	C, E, M, Ch
26	Elementary Machine Drawing	2	2	2	2	Anthony	E, M, Ch
27	Advanced Machine Drawing	3	1	2	2	C. H. Chase	E, M, Ch*
28	Elementary Machine Design	3	2	1	3	Anthony	E, M
29	Advanced Machine Design	4	1	2	3	Anthony	M

*Fourth Year.

SHOPWORK.

Work in the shops is conducted in general upon the laboratory plan, each student being required to complete, satisfactorily, a given amount of work.

The engineer or draftsman should have clearly in mind the processes by which a design is to become a reality, and to this end it is a primary object of the course to render the student familiar with the various processes of construction and the manipulation of materials. The object is not to produce expert workmen, — although a reasonable amount of skill is required, — but to give such training as will serve in the direction and supervision of the work of others.

The course is progressive and maintains a close relation with the courses in drawing and design, much of the work in design being executed in the shop from drawings prepared in the drafting-room.

An examination of the course will show, first, a term given to acquiring experience in the use of the ordinary tools in carpentry, and the use of the tools and lathe in wood-turning. Following this, moulding or foundry work is also taken up in preparation for pattern-making, which constitutes the remainder of the Freshman course.

Forging gives an introduction to the work with iron and steel, and shows the different qualities of the material for bending, drawing, welding, etc.

In the Junior year instruction upon metal work is continued, with vise and machine tools.

Project work, which usually carries a design through from the pattern to the finished product, requires experience in pattern-making and machine work, and gives an opportunity for the extension of the course in machine-shop instruction upon special lines.

SHOPWORK.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
40	Carpentry Wood-Turning Foundry *	1	1	2	3	C. H. Chase	C, E, M, Ch
42	Pattern-Making	1	2	1	3	C. H. Chase	C, E, M, Ch
44	Forging	2	2	1	3	C. H. Chase R. B. Moore	C, E, M
45	Chipping and Filing Machine Tools †	3	2	2	3	C. H. Chase	E, M
48	Project	4	2	3	3	C. H. Chase	Elective

*Carpentry, 8 weeks; Wood-Turning, 4 weeks; Foundry, 4 weeks.

† Civil Engineers may elect this during the first term.

CHEMISTRY.

General Inorganic Chemistry (50). Lectures, recitations, and laboratory work. Theoretical, descriptive inorganic chemistry, including a brief account of the carbon compounds and principal technical processes.

Quantitative Analysis (52). Lectures and laboratory work. Students, under direction, perform experiments and develop schemes for the division of the metals into groups, and for the separation and detection of the metals in each group. Reactions are written, and analytical details are discussed. Six known solutions and thirteen unknown are correctly analyzed.

Qualitative Analysis (53). Lectures and laboratory work. Treatment of substances to effect solution; detection of mineral acids; complete analysis of inorganic solids. The work involves the correct analysis of thirteen solid substances.

Quantitative Analysis (51) is mainly taught by laboratory work. The course includes both gravimetric and volumetric methods. The substances analyzed are minerals and salts.

Organic Chemistry (55). Lectures and recitations, covering the general principles of descriptive and theoretical organic chemistry.

Mineralogy (59) is taught by lectures, recitations, and laboratory work. The subject is intended to show the use of the blow-pipe, together with other tests that are of special value in determining minerals. Crystallography is taken up.

Metallurgy (57). A course of lectures and recitations relating to the more important technical methods of extracting iron, copper, and silver.

Assaying (67), mainly laboratory work, is designed to familiarize the student with the practical methods of sampling and assaying gold, silver, and lead ores.

Gas Analysis (63). Technical methods. Laboratory work.

Theoretical Chemistry (69). Lectures and recitations. Treats somewhat in detail the principal theories of chemical science.

Applied Chemistry (65) is taught by lectures and during excursions to chemical plants. Lectures relate to technical applications of inorganic and organic chemistry.

CHEMISTRY.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	Preparation Required.	INSTRUCTOR.	COURSE.
50	General Chemistry (Chemistry 1)	2	1, 2	3	1, 2		Durkee	C, E, M, Ch
52	Qualitative Analysis (Chemistry 2)	3	1	2	3	50	Durkee	C, E, M, Ch
53	Qualitative Analysis (Chemistry 3)	3	2	2	3	50 52	Durkee	Ch
55	Organic Chemistry (Chemistry 10)	3	1	3	1	50	Leighton	Ch
57	Metallurgy (Chemistry 8)	3	2	2	1	50	Durkee	Ch
59	Mineralogy (Chemistry 6)	4	1	2	1, 2	50 52 53	Leighton	Ch
61	Quantitative Analysis (Chemistry 5)	4	1, 2	2	3	50	Wilson	Ch
63	Gas Analysis (Chemistry 9)	4	1	1	2	50	Wilson	Ch
65	Applied Chemistry	4	2	2	1	50 55	Durkee	Ch
67	Assaying (Chemistry 7)	4	2	2	2	50	Durkee	Ch
69	Theoretical Chemistry (Chemistry 9)	4	2	2	1	50	Leighton	Ch

PHYSICS AND ELECTRICITY.

Instruction in Physics (70) is given by lectures fully illustrated by experiment. The aim is to present the science of Physics not as a series of detached subjects, but as a consistent body of doctrine in which mechanical principles hold throughout, and from which all the various phenomena are deducible.

The laboratory work (72) begins with the more important quantitative determinations in mechanics, sound, light, and heat, such as the determination of mass, density, elasticity, force of gravity, velocity of sound, pitch, focal length of lenses, index of refraction, wave length of light, candle-power, specific and latent heat, and coefficient of expansion of solids.

An elective elementary course in Electricity and Magnetism (74) is offered for those who may wish to supplement the lecture course in General Physics.

In the laboratory course in Electricity (73) much attention is given to the Wheatstone bridge and the measurement of resistance. Careful study is made of the condenser and the magnetic properties of iron. The candle-power of incandescent lamps, the determination of the constants of recording wattmeters, and the calibration of ammeters and voltmeters receive the attention their importance demands.

The course in Dynamo Electric Machinery (77), based upon S. P. Thompson's treatise, is very thorough and is supplemented by the experimental study of machines in the dynamo-room.

Great importance is attached to the course in Electrical Calculations (76), wherein a considerable number of practical problems are presented to the student for solution.

These problems embrace a large part of the domain of direct current work and include the elementary design of dynamos and motors, and winding-tables for drum armatures.

PHYSICS AND ELECTRICITY.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
70	Physics (Lectures)	1	1, 2	3	1	Dolbear	C, E, M, Ch
72	Physical Laboratory	2	2	2	3	H. G. Chase	C, E, M, Ch
73	Electrical Laboratory	3	1 2	3 2	2 2	H. G. Chase Hooper	C, E, M, Ch
74	Electricity and Magnetism	3	1	3	1	H. G. Chase	Elective
76	Electricity (Problems)	3	2	2	1	Hooper	E
77	Dynamo-Electric Machinery	3	2	3	1	Hooper	E
79	Electrical Laboratory	4	1, 2	3	2	Hooper	E

PHYSICS AND ELECTRICITY.

The study of Alternating Currents (82 and 83), is carried on during the entire Senior year. The subjects of Electro-Magnetic Induction, simple Periodic Currents, Self and Mutual Induction, Transformers, Polyphase Currents, and Induction Motors are successively treated, both descriptively and mathematically. At the same time the study of Alternating Current Machinery (79) is carried on in the laboratory. The Rotary Converter and the High Frequency Alternator permit the employment of any periodicity up to over one thousand per second. The employment of such high periodicity greatly facilitates the quantitative study of many alternating current phenomena which are only obscurely exhibited at low frequencies.

Honor students and those electing advanced electrical work read such works as "Alternating Currents," by Bedell & Crehore, "Principles of the Transformer," by Bedell, "Alternating Current Phenomena," by Steinmetz, "Hysteresis in Iron and Other Metals," by Ewing, etc., and have particular investigations assigned them in the laboratory.

In the course called "Electrical Topics" (85), each student selects, or has assigned to him, several subjects, upon the literature of which he is supposed to thoroughly inform himself and afterwards present the fruits of his work in the form of lectures to the class. It is believed that this course will prove of great value in developing the habit of thoughtful reading and in cultivating a just discrimination.

The course on the Telegraph and Telephone (87) outlines the evolution of these arts and deals exhaustively with the physical principles involved.

PHYSICS AND ELECTRICITY.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
82	Electricity (Current Induction)	4	1	4	1	Hooper	E
83	Electricity (Alternating Currents)	4	2	3	1	Hooper	E
84	Alternating Currents, Mathematical Treatment .	4	1	3	1	Hooper	Elective
85	Electrical Topics	4	2	3	1	Hooper	Elective
86	Magnetism, Theory and Phenomena of	4	2	3	1	Hooper	Elective
87	Telegraph and Telephone	4	2	2	1	Dolbear	Elective

ENGINEERING. — CIVIL AND MECHANICAL.

Surveying (90, 91) includes the theory and practice of Land Surveying and the theory of Topography. The compass, level, and transit are used, and other instruments are described. Text-book work is taken when weather forbids field operations. Plotting and computations accompany field and recitation work.

In Topography (92) a complete survey, based upon a careful triangulation, is made and mapped. When field practice ceases lessons are given in Topographical Drawing in ink and colors, in Stereotomy, and in Plaster Modelling.

Highways (93) considers the location and construction of country roads and city streets; the physical properties of earth, broken stone, and various pavements used as road surface; economy of traction, grades, construction and maintenance. Work is given by text-books, lectures, and highway reports.

Railroad Surveying (94) includes the field operations required for the preliminary survey, location of curves, turn-outs, switches, etc., together with office work based upon the data obtained in the field.

Railroad Engineering (95) embraces the theory and practice of location, construction, maintenance, and operation, and is carried on in the recitation and drafting rooms, and in the field. Careful study is made of location as influenced by train resistance, traffic, motive-power, cost of construction, and operating expenses. Students form field parties and obtain data for constructing a map and profile. The paper location is then put upon the ground and staked for construction.

Higher Surveying (96) includes Practical Astronomy and Elementary Geodesy, developed by text-book, lectures, and observations.

Roofs and Bridges (97) is largely a study of various methods of computing stresses in common forms of trusses.

Bridge Design (98) is an elective course in framed structures of wood and steel. Must be preceeded by 97.

ENGINEERING.—CIVIL AND MECHANICAL.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
90	Surveying	2	1	2	1, 2	Sanborn	C, E, M, Ch
91	Surveying	2	2	2	1, 2	Sanborn	C
92	Topography	3	1, 2	2	2, 3	Sanborn	C
93	Highways	4	2*	3	1, 2	Bray	C
94	Railroad Surveying	4	1	2	2, 3	Bray	C
95	Railroad Engineering	4	1, 2†	3	1, 2	Bray	C
96	Higher Surveying	4	2	2	1	Sanborn	Elective
97	Roofs and Bridges	4	1	3	1, 2	Sanborn	C
98	Bridge Design	4	2	3	2	Sanborn	Elective

* Last half of term.   † First half of term.

ENGINEERING. — CIVIL AND MECHANICAL.

Graphic Statics (99) begins with fundamental principles and is extended to common engineering problems: forces and stresses in frames and arches, beams with various loads; inertia diagrams, graphic integration, centre of gravity of displacement, and graphic representation of laws, and problems.

Sewerage (109) is given by text-book, lectures, and work in the drafting-room. Students design a sewer system from assumed data. Constant reference is made to literature and municipal reports on the subject, and at intervals students give to the class, in the form of a report, the results of their topical study.

Hydraulics (110), theoretical and applied, includes the laws relating to the pressure and flow of water in pipes, discharge over weirs, through tubes and conduits, and embraces the measurement and development of water power and the construction of water wheels. It is accompanied by numerous problems.

Masonry (111) involves a consideration of the materials of construction; the method of preparing and using the material; foundation and structure. It is taught by lectures, text-books, and inspection of work in process of construction. Each student works out the design for some structure, making the necessary drawings, specifications, and estimates.

Pure Mechanics (112) is a mathematical treatment of the general principles relating to velocity, force, energy, etc.

Applied Mechanics (113) is a continuation of 112, wherein particular attention is given to the strength of materials and of structures. Throughout the course numerous practical problems illustrate the principles considered.

Applied Mechanics, Laboratory (114). This course is carried on in connection with the study of Applied Mechanics, and consists of the testing of the strength of materials of construction. Experiments are made to determine the character of materials as to elasticity, change of form, etc. Cement tests and measure of stresses in frames are also made.

ENGINEERING.—CIVIL AND MECHANICAL.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
99	Graphic Statics	4	1	2	2, 3	Bray	Elective
109	Sewerage	4	2	3	1, 2	Bray	C
110	Hydraulics	4	1	3	1	Bray	C, E, M, Ch
111	Masonry	3	2	3	1	Bray	C
112	Pure Mechanics	3	1	3	1	Hooper	C, E, M, Ch
113	Applied Mechanics	3	2	3	1	Bray	C, E, M, Ch
114	Applied Mechanics, Laboratory	3	2	1	2	Bray	C, E, M, Ch

ENGINEERING. — CIVIL AND MECHANICAL.

Structural Design (115). This work is carried on in the lecture and drafting room, and is based upon the principles developed in the previous engineering studies. The methods pursued are precisely those of a regularly organized engineer's office.

Steam Engine (120). The fundamental principle involved in the generation of steam is followed by a study of engine details, valve gears, and the valve diagram. The theory of the indicator is taught, and applied to the making of simple tests.

Steam Engineering (121). This course includes the thermodynamics of the steam engine and other heat engines, together with the study of various types of valve gears.

Steam Engineering (122) includes problems relating to the design and construction of steam engines involving the strength and proportion of parts, the consideration of multiple expansion engines, and steam boilers. Practice is also given in engine and boiler testing.

ENGINEERING.—CIVIL AND MECHANICAL.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
115	Structural Design	4	1, 2	2	2, 3	Bray	C
120	Steam Engine	3	1	3	1	Anthony	C, E, M, Ch
121	Steam Engineering	3	2	3	1	Anthony	M
122	Steam Engineering	4	1	3	1	Bray	M
123	Engineering, Laboratory	4	2	3	2	Bray	M

ENGLISH.

Composition is required during the Freshman and Sophomore years. English 1 (140) is chiefly extemporaneous, and is accompanied by lectures and the discussion of papers. The more formal study begins with English 2 (141) in the Sophomore year, and includes with theory a large amount of practice, together with the criticism and discussion of themes.

The aim in English 3 (142) is to emphasize the fundamental function of expository writing, and to aid the student to gain clearness, ease, and rapidness of expression. The written work consists of five themes each week. The subject is open only to those who have attained Grade B in English 2.

English 4 (143). Three kinds of writing — narration, description, and exposition — are discussed, and specimens from eminent authors are studied. Two themes each week are required.

English 5 (144). Argumentative Composition; a study of its requirements as observed by successful writers, with constant practice by the student. The equivalent of two themes each week is required.

English 6 (145). Essays, with special attention to the construction of extended discourse. Weekly papers, plans, free discussion, individual criticism.

In the study of English Literature (146) intelligent appreciation of the author's thought, and of his characteristic mode of expression, is the immediate result held in view. Biographical and philological details, the effect of environment, and the mass of published criticism that clusters about the great names are not neglected, although given a subordinate place. The method at first pursued demands attentive reading of much more than can be considered in the class-room, frequent written expression of literary judgments, and the occasional private investigation of topics not otherwise treated.

The course in Shakespeare (148 and 149) includes the reading of selected plays, lectures, brief critical essays, and examinations. 149 can be taken before 148.

ENGLISH.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
140	English 1	1	1, 2	1	1	Shipman	C, E, M, Ch
141	English 2	2	1, 2	3	1	Whittemore	C, E, M, Ch
142	English 3	3 or 4	1	1	1	Whittemore	Elective
143	English 4	3 or 4	1	1	1	Whittemore	Elective
144	English 5	3 or 4	1	2	1	Shipman	Elective
145	English 6	3 or 4	1 or 2	2	1	Shipman	Elective
146	English 11	3	1, 2	1	1	Maulsby Knight Wade Earle	C, E, M, Ch
148	English 17	4	1	3	1	Maulsby	Elective
149	English 18	4	2	3	1	Whittemore	Elective

MODERN LANGUAGES.

An elementary knowledge of French or German equivalent to 160 or 165 is required for admission to any course in Engineering.

The language offered in entrance will be continued during the first two years, unless the candidate for admission receives credit for the equivalent of Intermediate French (161) or Intermediate German (166), in which case he may take the alternative language for the two years; or, if he passed during his Freshman year with high credit Intermediate French or Intermediate German, he may take the alternative language during his Sophomore year. A student who has thus taken Elementary French (160) or Elementary German (165) in his Sophomore year will be expected to continue that language as an elective during his Junior year. Any subject in modern languages offered in the College may be elected by an engineer properly qualified during his Junior or Senior year, subject to the approval of the instructors in the elected subject. Those who take German pursue the regular college course, but for those engineers who take French separate subjects are offered specially adapted to their needs. Elementary French (160) is the equivalent of the work required for the entrance examination. Intermediate French (161): review of verbs and of syntactical difficulties; reading of a considerable amount of ordinary prose, with special attention paid to idiomatic translation. Advanced French (162): reading of difficult and technical prose, to enable the student to read rapidly and accurately, without translation, such French as he will find of practical value.

POLITICAL SCIENCE.

In this department are included subjects relating to Economics, Government, and Law. It includes an historical survey and a consideration of the fundamental principles of economics.

PHYSICAL TRAINING.

The aim of the department is to secure a more symmetrical development of the body, and a fuller appreciation of the value of systematic exercise. Special work is prescribed for each student, dependent on his physical examination, and class work is also conducted.

MODERN LANGUAGES.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
160	French Elementary	1	1, 2	3	1	Earle	
161	French Intermediate	1	1, 2	3	1	Earle	C, E, M, Ch*
162	French Advanced	2	1, 2	3	1	Earle	C, E, M, Ch
163	French Elective	3 or 4	1, 2	3	1		
165	German Elementary	1	1, 2	3	1	Fay	
166	German Intermediate	1	1, 2	3	1	Fay	C, E, M, Ch*
167	German Advanced	2	1, 2	3	1	Fay	C, E, M, Ch
168	German Elective	3, 4	1, 2	3	1		

OTHER SUBJECTS.

No.	SUBJECT.	Year.	Term.	No. of Exercises Per Week.	Length of Exercise.	INSTRUCTOR.	COURSE.
180	Political Economy	4	1, 2	3	1	Metcalf	C, E, M, Ch
185	Physical Training	1, 2	1, 2†	3	1	Stroud	C, E, M, Ch

One language only is required. † From the middle of November to the middle of March.

The Graduate Department.

ADMINISTRATIVE BOARD.

ELMER H. CAPEN, A.M., D.D., LL.D., *President.*
AMOS E. DOLBEAR, M.E., PH.D.
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INSTRUCTION.

Graduate instruction is given by the General Faculty. The advanced elective work offered to undergraduates in any department of the College of Letters is open to graduate students, and will count for the degree of Master of Arts, on condition that it be not counted for any other degree. Additional courses still more advanced may be arranged in many cases with the instructor in whose department the work is to be done.

DEGREES.

The degrees offered are Master of Arts, Electrical Engineer, Mechanical Engineer, Civil Engineer, and Doctor of Philosophy. Departments at present open to candidates for the degree of Master of Arts are : —

ENGLISH.
MODERN LANGUAGES.
LATIN.
GREEK.
HISTORY.
MATHEMATICS.
CHEMISTRY.
BIOLOGY.
ELECTRICITY.

THE DEGREE OF DOCTOR OF PHILOSOPHY is offered in Chemistry and Biology.

The conditions upon which the several degrees may be obtained, and the requirements of the departments, are stated below.

The Degree of Master of Arts will be conferred upon graduates of Tufts College who have received the degree of Bachelor of Arts, or upon graduates of other colleges whose course of study has been equivalent to that required at Tufts College for the degree of Bachelor of Arts, upon the following conditions: —

1. They shall have completed an approved course of advanced study, including the equivalent of at least thirty term hours, in one or, at the most, two departments.
2. This course shall be pursued during a residence of not less than one year. The condition of residence may be waived by special permission, but in this case the degree cannot be taken with less than two years of graduate study.
3. The candidate shall prepare a thesis and pass a satisfactory examination before a board of three examiners appointed by the Executive Board of the Graduate Department.
4. No subject counted for the first degree will be counted for the second degree.
5. Students taking the degree at the end of a four years' course of study must have complied with the requirement as to standing governing those who receive the degree of A.B. at the end of three years; that is, an average standing of Grade B, or higher, must have been attained on the entire work of the course.
6. Candidates for this degree must make a written application to the Executive Board of the Graduate Department before October 1 of the college year in which the degree is to be conferred, and if the degree is not taken after one year's study they must also give a second notice three months before receiving the degree.

Graduates of Tufts College who have taken the degree of Bachelor of Philosophy, or graduates of other colleges holding a degree of similar grade, must complete the requirements for the degree of Bachelor of Arts before they can be entered as students in courses leading to the degree of Master of Arts.

The Degree of Civil Engineer, Electrical Engineer, or Mechanical Engineer will be conferred upon Bachelors of Science in Civil, Electrical, or Mechanical Engineering, respectively, who shall satisfactorily pursue advanced professional study at the College for one year, under the conditions required of candidates for the degree of Master of Arts; or who shall present suitable evidence of three years of professional work, one year of which must be in a position of responsibility, in which case a certain amount of professional study will be assumed. A thesis based upon this study will be required.

The Degree of Doctor of Philosophy will be conferred upon Bachelors of Arts, Philosophy, or Science who shall have pursued at least three years of graduate study, two years of which must be in residence. This degree will not be conferred simply on the ground of the completion of the required course of study. High attainment is necessary, and especially the power of original thought and independent investigation. The whole course of study must be devoted to one subject, and a thesis must be presented giving evidence of original research. Other special requirements may be made by the instructors in charge of the work of the candidates. Each candidate must pass a satisfactory examination before a board of three examiners appointed by the Administrative Board of the Graduate Department.

The candidate for this degree must make a written application to the Secretary of the Administrative Board of the Graduate Department at least two years before the degree is to be conferred, and his thesis must be handed to the Secretary of the above board at least two months before Commencement.

The Degree of Master of Arts may be taken by candidates for the degree of Doctor of Philosophy at the end of their first year's study, or will be conferred together with the latter degree.

DEPARTMENTS OPEN TO CANDIDATES FOR THE DEGREE OF MASTER OF ARTS.*

English.— It is assumed that candidates for the degree of Master of Arts in English will have taken, as undergraduate work, the required number of hours selected from subjects 1 to

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* Subject numbers referred to in these statements are those used under Departments of Instruction, pages 57 to 98.

6, and in addition, that, as major students in English, they will have fulfilled the conditions governing major students by making choice from those subjects in the department that are open to election. Subjects 7, 17, 18, 19, 21, 22, 23, 24, 25, and 26, so far as these have not been anticipated as undergraduate work, may be counted toward the master's degree, provided that the work done distinctly surpasses in quality that required of undergraduates.

MODERN LANGUAGES.— The extended undergraduate courses offered in Modern Languages enable the candidate for the degree of Bachelor of Arts, who specializes in this department, to cover the work formerly required for the master's degree. For those who have not taken the more advanced subjects, the department offers a full graduate course leading to the degree of Master of Arts. The work is performed in existing undergraduate classes. (See pages 61 to 65.) To enter upon this course, the candidate must have completed the equivalent of six of the Modern Language subjects, including 1 and 2 in both German and French. Of elementary subjects only Italian may be taken by such as have had the equivalent of two years of French. Graduate students whose special work is being performed in other departments are admitted to such classes in German and French, beyond subject 1, as their proficiency will allow.

LATIN. — Candidates for the degree of Master of Arts in Latin must have completed satisfactorily Latin 1, 2, 3 or 4, and 5, or equivalents. Greek may be taken as minor work with Latin. A reading knowledge of German is essential, and of French and Italian is desirable, for students intending to take advanced work in Latin. Graduate students, when pursuing subjects especially designed for undergraduates, are expected to do an extra amount of work in them. The required thesis must embody the result of the special investigation of some author or period, or of some philological or archæological subject.

GREEK. — Candidates for the degree of Master of Arts in Greek must have completed Greek 1, 2, 3, and 5, or equivalents for these subjects. Latin may be taken as minor work with Greek. Graduate students will be expected to do work of advanced character, whether in classes with undergraduates, or in special lines of investigation assigned by the instructor. The required thesis, on some approved topic, relating to some author, period, or philological problem, must give evidence of this advanced attainment. A reading knowledge of German and French is necessary for students intending to do advanced work in Greek.

History. — Every graduate student who intends to become a candidate for a degree must have taken History 1 and 4, or their equivalents. Candidates for the degree of Master of Arts must be able to read French works, and a working knowledge of German is desirable, and may in some cases be necessary. Of the subjects announced in the program of this department on pages 72 to 74, 2, 3, 5, 6, and 7 will be accepted as part of work leading to the degree of Master of Arts. In addition to these subjects, work will be laid out for graduate students in such special lines as individuals may desire to pursue. Certain collateral subjects may be called for in such cases. Graduate students will be expected to do something in the way of independent investigation of a definite subject, the results to be embodied in the thesis required to obtain the degree.

Mathematics. — Graduate students in Mathematics must have passed creditably the prescribed undergraduate work in this department — Mathematics 1 — and may do graduate work from that point or from such more advanced point as they may have attained. They are required to complete all the courses offered by the department, except Mathematics 11, as stated in the Catalogue, to receive the degree of Master of Arts.

Chemistry. — Candidates for the degree of Master of Arts must have completed subjects 1, 2, 3, and 10, or their equivalents. Subjects 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, and 15 are offered for graduate students, and satisfactory work must be done in at least five of these subjects. The candidate must present an acceptable thesis and pass satisfactory examinations in all of the subjects studied.

Biology. — Candidates for the degree of Master of Arts in Biology must have already done work equivalent to Biology 2, 3, and 4; or, lacking that, they must take omitted subjects in addition to their graduate work. The work will be done in the lines of comparative anatomy, histology, or embryology, and will include a thesis embodying original research.

Electricity.— The candidate for the master's degree in Electricity must have done substantially the work in that department required of the Bachelor of Electrical Engineering. This involves the election during his undergraduate course of studies in this department, if it is expected that the degree will be obtained within one year of graduate study.

DEPARTMENTS OPEN TO CANDIDATES FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.

Chemistry.— Candidates must be able to translate scientific German readily and accurately before beginning their work, and must have already taken subjects 1 to 7 inclusive, 9 and 10, or equivalent work. Unless previously qualified, they must take subjects 11, 12, 13, 14, 15, and 17, and devote at least one year to subject 16. Examinations in the above subjects must be satisfactorily passed, and a thesis embodying an original investigation in Chemistry must be presented.

A well-equipped laboratory is open to graduate students who may wish to pursue special lines of research, and the department is prepared to offer every facility for the encouragement of original investigations.

Biology.— Candidates must have a good working knowledge of French and German before beginning their work; they must carry on research in Animal Morphology for at least three years, two of which must be in residence, and they must have passed one summer at some seashore biological station. They must pass an examination on General Zoölogy, embracing not only the fundamental facts of morphology and classification, but the more prominent philosophical views as well. Each candidate must present an acceptable thesis embodying original research, with an adequate discussion of the bearings of the facts discovered, and the views of previous writers on the same subject.

FELLOWSHIPS.

THE OLMSTEAD AND MINER FELLOWSHIPS IN NATURAL HISTORY.— In accordance with the spirit of the gift of the late Charles Hyde Olmstead, of Hartford, Conn., the trustees have established two fellowships in Natural History, to be known respectively as the Olmstead and Miner Fellowships. The income of these fellowships, amounting to two hundred and fifty dollars annually each, is awarded by the Trustees to graduate students in Natural History upon recommendation of the graduate Faculty. The conditions of the fellowships are as follows: —

(1) The application must be made in writing before May 1, addressed to the President of the College. It must contain evidence of a liberal education, of an ability to profit by the work to be done, and testimonials of good character from instructors or others. Any original article, either written or printed, is an aid in ascertaining the attainments of the candidate.

(2) The holder of the fellowship will be expected to devote himself to the prosecution of some special subject under the direction of the professors in charge of the departments of Natural History. He may be called upon for minor services, such as conducting examinations, but he shall not be called upon to teach. He may, however, at his own option, and with the approval of the President, give instruction by lectures or otherwise to persons connected with the College, but not elsewhere.

(3) The payments will be made half in January and half in June; but, in case of resignation or removal from the fellowship, payment will be made only for the time it is actually held. The holder of the fellowship is not exempt from the payment of tuition.

(4) Residence is a condition of holding either of these fellowships.

The holder of a fellowship may be eligible to a single reelection, but incumbency constitutes no claim to reappointment.

TUITION.

The tuition fee for the whole course for the degrees of Master of Arts, Civil Engineer, and Electrical Engineer is *one hundred dollars*, of which *fifty dollars* is payable in advance.

The tuition fee for candidates for the degree of Doctor of Philosophy is *one hundred dollars* for each year spent at the College, of which *fifty dollars* is payable in advance each year.

The requirement of bonds stated on page 150 applies to all students of the College, graduate as well as undergraduate.

Buildings and Equipment.

BUILDINGS.

The College buildings are fourteen in number: Ballou Hall, containing recitation-rooms and the physical laboratory; Barnum Museum, containing the natural history collections and the biological and geological laboratories and lecture-room; Goddard Chapel; Goddard Gymnasium; the Library; the Chemical Building, containing the chemical laboratories and lecture-room; three dormitories,— East Hall, West Hall, Dean Hall; the Commons Building, containing the commons dining-hall, the post-office, and rooms for students; and Metcalf Hall, for women students. The Bromfield-Pearson School building is available for the technical courses of the College. Two buildings, Miner Hall and Paige Hall, are devoted to the use of the Divinity School.

LIBRARY.

The Library contains about thirty-eight thousand bound volumes and over seventeen thousand pamphlets. It includes, in a separate room, the private library (numbering fourteen hundred and forty volumes) of the late Rev. William H. Ryder, D.D., of Chicago. It has a very full collection of English works relating to music, and in addition to its general collection in American history, the valuable collection in this field of the late Richard Frothingham. There is also the Metcalf Musical Library of thirteen hundred volumes, which is accessible to students of the College. The College regularly receives over two hundred periodicals. In the Library building a reading-room, maintained by the students, supplies the daily and weekly papers. The average annual increase by donation and purchase, for the last five years, has been about twelve hundred volumes. The Library is open to all members of the College every day in the week, except Sunday, from 8.45 A.M. to 12.45 P.M., and from 2 to 5 P.M.

In addition to the general library, there is in Miner Hall the collection of the Universalist Historical Society (thirty-five hundred volumes and several thousand pamphlets), to which, on application, students have free access; and in the Barnum Museum, the department library of Natural History, numbering over one thousand volumes and twenty-eight hundred pamphlets. There are altogether over forty thousand bound volumes available for use.

BARNUM MUSEUM.

The Barnum Museum of Natural History was built in 1883–84 by the late Phineas T. Barnum, who also gave the College a fund for its maintenance, and later, by bequest, gave funds for the erection of two wings to the central building. One of these wings has been erected. In addition to laboratory rooms, it affords space for the display of the mineralogical and geological collections.

The College is also indebted to Mr. Barnum for the larger portion of its zoölogical collection. This serves to illustrate all groups of the animal kingdom, and is especially rich in skeletons and mounted skins of mammals. Besides the more common forms, it contains many rare and interesting species, as Hatteria, Polypterus, Ceratodus, Protopterus, Cestracion, Amphioxus, Peripatus, and Pentacrinus, the whole being well adapted for the purposes of instruction. During recent years a large series of skeletons of the lower vertebrates, as well as numbers of the Naples Station Invertebrates, have been placed on exhibition.

The botanical collection consists of an herbarium containing a representation of the flora of New England, besides many specimens from Europe and the Southern and Western States. The geological collection contains representatives of the various types of rocks, as well as of fossils from all formations. Especially interesting are the nearly perfect skeletons of Ichthyosaurus and Plesiosaurus. The mineralogical collection, which has been assembled with great care, contains most of the species in very fine example. Among those at present displayed are collections illustrating the chemical and physical properties of minerals.

The laboratories and lecture-rooms of the department of Geology are in the main Museum building. The geological laboratory is provided with petrological microscopes, instruments for making rock sections, and other instruments; the mineralogical laboratory possesses the apparatus necessary for the determination of minerals, the analysis of ores, and assay work; the biological laboratories are in the newly erected wing. The laboratory for elementary work is equipped with all necessary facilities, while the laboratories (two in number) for advanced and research work have all the appliances and reagents needed for investigation in the lines of anatomy, histology, and embryology.

The department library of Natural History, recently established in the Barnum Museum, contains those publications which bear directly upon the work of the department. It already embraces over one thousand volumes and over twenty-eight hundred pamphlets. Its future increase is in part provided for by the publications received in exchange for the Tufts College Studies. Most of the series of periodicals are complete since 1870.

GODDARD GYMNASIUM.

The Goddard Gymnasium, the gift of Mrs. Mary T. Goddard, is large and well equipped for class and individual work. It is provided with dressing-rooms, tub-baths, shower-baths, and lockers. The apparatus embraces that usually found in a well-equipped gymnasium, including fourteen Sargent developing-machines, a large wrestling-mat, and facilities for basket-ball. The gallery contains a running-track, one thirty-second of a mile in length, and there is a well-lighted ball-cage. A full set of anthropometric instruments admits the accurate measurement of each student as preliminary to the assignment of suitable exercise.

Ballou Hall.

THE
JOHN CRERAR
LIBRARY.

PHYSICAL LABORATORY.

The Physical Laboratory contains apparatus sufficient for illustrating all the general principles of Physics. The equipment includes a dividing-engine, chronograph, cathetometer, sextant, microscope, saccharimeter, polariscope, spectroscope, spectrometer, optical bench, Rowland's gratings, and charts of the solar spectrum; also apparatus for projection with sunlight, lime, and electric lights. In the field of electricity the equipment is especially good, including standards of resistance, of capacity, and of electro-motive force, besides a variety of instruments for accurate measurement.

ELECTRICAL LABORATORY.

The Electrical Laboratory is supplied with the apparatus needed for testing and experimental purposes; among which may be mentioned ammeters, voltmeters, Wheatstone bridges, reflecting galvanometers, an electrometer, Sir William Thomson's standard balances, condensers, a large induction coil, and, in process of construction, an electro-dynamometer with coils a meter in diameter.

The dynamo-room contains a B. F. Sturtevant high-speed automatic engine of about twenty-five horse-power, belted to a line of shafting, the driven pulley being connected to the shafting through an Emerson power-scale reading to forty horse-power. From this shafting are belted an American and a Ball arc-light dynamo, a 12 kilo-watt polyphase generator, a 15 kilo-watt 110 volt generator, and a pair of 110 volt 1,500 watt machines for the Library three-wire installation. Connected with the engine by a clutch is a 15 kilo-watt Mordey alternator. There are also a pair of railway motors and several small motors for testing purposes and for power. Steam power is furnished by a Whittier boiler.

Belonging to the dynamo-room are over twenty arc-lamps and a supply of electrical testing instruments. Adjacent is the battery-room, the main battery consisting of sixty of the large cells of the American Accumulator Company. These cells are in constant use for experimental and motor work, and for lighting.

CHEMICAL BUILDING.

The building of the department of Chemistry contains laboratories for General Inorganic, Organic, Analytical, and Metallurgical Chemistry, a large lecture-room, library, and weighing-room, and the private laboratories of the professors in charge. The rooms are provided with all the modern laboratory conveniences and are well equipped with apparatus and chemicals.

BROMFIELD-PEARSON BUILDING.

The Bromfield-Pearson building is provided with shops and drafting-rooms equipped for the instruction of classes in the Engineering courses in Carpentry, Pattern-making, Forging, Foundry and Machine Work, and Drawing. The equipment includes a forge shop and foundry, provided with the necessary forges and tools for a class of eighteen ; pattern and machine shops, also equipped for classes of eighteen, each member being provided with a lathe, bench, and necessary tools. The drafting-rooms are on the northern side and are separated from the noise and vibration of the shops. Abundant and uniform light is provided.

THE HALLS.

The Halls for the accommodation of students in the College of Letters are five in number. East, West, and Dean Halls and the Commons Building, for men, are arranged with spacious and convenient rooms, in suites, are warmed by steam, lighted by gas, and have good modern plumbing. Metcalf Hall, for women students, is a gift to the College by Mr. Albert Metcalf, of Newton. It is built of buff brick and gray limestone, of simple and dignified architecture, and is equipped with every convenience. The first floor contains the rooms of the matron, a reception-room, cloak-room, reading-room, and dining-room. The second and third floors have pleasant rooms for students, with ample bath and toilet conveniences on each floor. In the wing is the kitchen on the first floor, and servants' rooms on the second. Every safeguard for health and against fire is provided.

General Information.

RELIGIOUS OBSERVANCES.

Goddard Chapel, erected in 1882–83, is the gift of Mrs. Mary T. Goddard as a memorial of her husband, the late Thomas A. Goddard. Morning prayers are held daily, at which attendance is required. The care of the pulpit on Sunday devolves upon the President of the College; but variety and interest are given to the preaching services by frequent exchanges with neighboring clergymen. Attendance upon Sunday services is required; but permission is freely given to those who desire to attend elsewhere.

The RUSSELL LECTURE, established in accordance with a bequest of the late James Russell, of Arlington, is delivered before the Trustees, Faculty, and students, on the first Sunday of the college year, by either a clergyman or a layman, on a subject prescribed by the testator.

TUFTS COLLEGE STUDIES.

This publication has been established as a means of presenting to the world the results of original work done in the different departments of the College. The numbers, which will be issued as material is ready, will be distributed to educational institutions and learned societies. The College desires to establish regular exchanges of these Studies with all publishing institutions at home and abroad. Correspondence regarding such exchanges should be addressed to the Librarian of Tufts College.

Five numbers have been issued, containing the following papers: "The Anterior Cranial Nerves of Pipa," by G. A. Arnold; "Ectodermic Origin of the Cartilages of the Head," by Julia B. Platt; "The Classification of the Arthropoda," by J. S. Kingsley; "Development of the Lungs of Spiders," by O. L. Simmons; "Development of the Wing in Sterna Wilsoni," by V. L. Leighton; "The Morphology and Classification of the Pauropoda, with notes on the Morphology of the Diplopoda," by Frederick C. Kenyon; "The Chondrocranium in the Ichthyopsida," by Guy M. Winslow; and "The Growth of 'Sartor Resartus,'" by David Lee Mauslby.

The editorial board of Tufts College Studies for the current year is made up of the President of the College, and Professors Knight, Dolbear, and Kingsley.

REGISTRATION.

Every student in the College of Letters is required to file with the Registrar or his assistant a plan of study for the first term on the morning of the opening day of that term; and a similar plan for the second term on the morning of the last day of the first term.

This registration for students not in the Engineering Department is made in duplicate on blanks furnished for the purpose, one copy to be kept on file by the Registrar, the other to be used, in the case of Freshmen, by the Committee on Freshman Plans of Study, and in the case of special students and members of the upper classes, by major instructors. Each student also furnishes such data as shall be required by the Registrar for class lists. Registration is made by classes as appears below, classification being as shown in the official list last printed: —

Seniors and *all* specials, 8.45 to 9.30 A.M.
Juniors, 9.30 to 10.15 A.M.
Sophomores, 10.15 to 11.00 A.M.
Freshmen, 11.00 A.M. to 12 M.

The Committee on Freshman Plans of Study will be in session for consultation from three to five P.M., on the second day of the fall examinations, and during the same hours on the afternoon preceding the last day of the first term.

Students will make their plans of study subject to the following regulations: —

No Freshman shall take a program of more than nineteen term hours during the first half-year.

No student shall take a program of more than sixteen term hours who has, for the preceding half-year, received the mark D in courses aggregating three term hours, or the mark C in courses aggregating more than six term hours.

No student shall take a program exceeding twenty-one term hours who has, for the preceding half-year, received the mark C in courses aggregating three term hours, or the mark B in courses aggregating more than nine term hours.

These rules do not apply to physical training.

Each student in the Engineering Department is required to file with the Secretary on days as above described for other students a plan of study, together with such data for class lists as shall be required. The following program for registration is followed, classification being based upon the last printed list as explained above: —

Seniors, 8.45 to 9.15 A.M.
Juniors, 9.15 to 9.45 A.M.
Sophomores, 9.45 to 10.15 A.M.
Freshmen, 10.15 to 10.45 A.M.

A registration fee of two dollars is imposed upon students in all departments who fail to register in person during the time prescribed for their respective classes, or who fail to file with the proper official their plans of study and other required data before one o'clock P.M. on the day of registration. This fee must be paid to the College Treasurer or his representative before registration can be permitted. Students are not recognized as members of classes until they have met all requirements of registration.

During the hours set apart for registration instructors may be seen for consultation and for approval of plans of study, in rooms to be announced by posted bulletins.

PROMOTIONS.—Students in the courses leading to the degrees of A.B. or Ph.B. are registered as Sophomores when they have twenty-six term hours to their credit; as Juniors when credited with fifty-eight term hours; and as Seniors when credited with ninety term hours.

Students in the Engineering Courses fail of promotion if they have deficiencies amounting to six term hours in the prescribed work of the year. The Engineering Committee will be in session from nine to twelve o'clock in the forenoon of the second day of the fall examinations to consider the programs of such students in Engineering as have six or more term hours of conditions, or have failed to fulfil requirements imposed at the close of the previous year.

Admission from Other Colleges. — Students entering Tufts College, after pursuing study in any other college of equal rank, are credited with the number of hours' work actually done toward the requirements of Tufts College, as certified by the proper authorities of the college from which the student comes. Such students must present satisfactory certificates showing the amount and character of work already accomplished, in order to obtain credit on the course of this College.

SPECIAL STUDENTS.

Students wishing to pursue a special course of study, who are not candidates for a degree, are subject to the following regulations: —

1. Every special student shall choose a major department, and shall make up a plan of study under the direction and subject to the approval of the major instructor.
2. The student shall satisfy the instructor in each subject included in the approved plan of study that he is able to pursue the work.
3. Every special student having less than fifteen program hours a week will be required to obtain seventy per cent in each subject; but those whose program hours number fifteen or more will be treated in the same manner as regular students.
4. A special student, on leaving College, shall be entitled to a certificate giving the per cent attained in each course pursued, and signed by the President and the Registrar.
5. Special students in Electrical Engineering are required to pass examinations in General Physics, Trigonometry, and Elementary Calculus.

TERMS AND VACATIONS.

The college year begins on the third Thursday in September, and ends at Commencement, the third Wednesday in June.

The year is divided into two terms of eighteen weeks each. There are no college exercise during a recess of three days at Thanksgiving, two weeks at Christmas, and one week beginning on the Saturday before the first Thursday in April.

EXPENSES.

The charge for instruction in all departments in the College of Letters, except the Department of Engineering, is *one hundred dollars* a year, or *four hundred dollars* for the full course leading to any degree other than in Engineering, whether the course be completed in three, four, or more years.

The charge for instruction in the Department of Engineering is *one hundred and twenty dollars* a year.

Students leaving College before the completion of any term are required to notify the Secretary of the Faculty at once. In case of failure to file such notification, tuition will be charged for the full term.

Students in the chemical laboratories are charged for breakage and *four dollars* a term for materials used. A fee of *two dollars* a term, payable in advance, is required of all students taking laboratory work in Biology. Students, except those in the engineering courses, who take shopwork are charged extra.

The college halls will accommodate two hundred and fifty men. Half-room rent, including heat, ranges from sixteen to eighty-five dollars. Metcalf Hall will accommodate twenty-four women. Students furnish their own rooms. A charge of *ten dollars* a year for the care of rooms is made to all persons rooming in any of the college buildings, except Paige Hall. Any damage done by students to college property is charged in the term bills.

Rooms in the college halls will be open for the occupancy of students on and after the Wednesday of the week preceding the opening of the college year.

Non-resident students in all departments except the Medical School are subject to a fixed annual charge of ten dollars.

Every student who enters the College of Letters is required to deposit with the Bursar of the College either a bond with two satisfactory sureties for the sum of *two hundred dollars*, or the sum of *one hundred dollars* in cash, which sum, with interest at the rate of four per cent yearly, will be returned when the student leaves the College, his term bills first being paid in full. No officer or student of the College will be accepted as a bondsman.

The charges for each year are contained in two bills, of which the first is made at the middle of the year, and is payable on the first day of March; the second is made immediately after Commencement, and is payable on the first day of the following college year; but the second bill of the Senior year must be settled by the Saturday before Commencement, or graduation will not be permitted.

All college charges are payable to the Bursar, and all arrangements with regard to rooms are to be made with him. The Bursar's office is in the Library Building.

Students board in commons at $3.75 per week; in private families at $3.50 to $5.00 for table board. Other expenses vary with the economy of each student.

The following estimates represent the fixed annual expenses : —

Tuition	$100.00	$100.00
Physical culture, including gymnasium and grounds	10.00	10.00
Reading-room	1.00	1.00
Half-room rent	16.00	85.00
Care of rooms	10.00	10.00
Board, $3.50 to $5.00 a week (36 weeks)	126.00	180.00
Total	$263.00	$386.00

SCHOLARSHIPS.

Awards of scholarships are made by the Board of Trustees on the recommendation of the Faculty. The obtaining of a scholarship for one year does not constitute any title to a second nomination.

Applications for scholarships must be filed with the Bursar on blanks furnished for the purpose, on or before the tenth day of October; and, if the applicant be a minor, must be sanctioned by his parent or guardian. Scholarships will be granted, in general, only to students actually in need of such aid. No one need apply who has not made satisfactory progress, or who has come under any grave censure in the course of the year.

Scholarships are available for those students only whose term bills are fully paid within ten days after the opening of each college term, or after such bills shall have become due. The bills of any student whose connection with the College ceases are due at that time. The term bills of members of the graduating class are payable on the Saturday preceding Commencement Day.

No scholarship is available to any student who is not a resident of a college dormitory, unless excused in writing from such residence by the authority of the Executive Committee of the Board of Trustees.

The following scholarships, the yearly income of which is one hundred dollars each, are awarded annually by the Trustees, but except in special cases, when the donor has otherwise stipulated, the Trustees will award scholarships in the sum of fifty dollars each.

THREE STATE SCHOLARSHIPS.— Established in accordance with a resolve of the Commonwealth.

FIVE HOWLAND SCHOLARSHIPS.— Established from the income of the bequest of the late Edwin Howland, of South Africa.

FIVE WALKER MATHEMATICAL SCHOLARSHIPS.— Established in honor of the late William J. Walker, M.B., of Newport, R. I., and payable from the income of the Walker Fund.

TWO MOSES DAY SCHOLARSHIPS. — Founded by the late Moses Day, of Roxbury.

THE A. A. MINER SCHOLARSHIP. — Founded by the late A. A. Miner, D.D., of Boston.

THE REBECCA T. ROBINSON SCHOLARSHIP. — Founded by the late Charles Robinson, LL.D., of Newton.

THE WILLIAM OSCAR CORNELL SCHOLARSHIP. — Founded by William Oscar Cornell, of Providence, R. I.

THE ARA CUSHMAN SCHOLARSHIP. — Founded by Ara Cushman, of Auburn, Me.

The Laura A. Scott Scholarship.— Founded by Mrs. Laura A. Scott, of Ridgefield, Conn.

The Stow Scholarship.— Founded by Mrs. Eugenia D. Stow, of Meriden, Conn.

The Norcross Scholarship.— Founded by James A. and Mrs. Mary E. Norcross, of Worcester.

The Anderson Scholarship.— Founded by John M. Anderson, of Salem, in the name of John M. and Rebecca Anderson.

The Travelli Scholarship.— Founded by Mrs. Emily R. Travelli, of Newton.

The Whittier Scholarship.— Founded by Charles Whittier, of Roxbury, in the name of Charles and Eliza Isabel Whittier.

The Talbot Scholarship.— Founded by Newton Talbot, of Boston.

The Simons Memorial Scholarship.— Founded by Mrs. Mary A. Simons, of Manchester, N. H., in memory of Hiram H., Augustus, and Frank Simons.

The Amasa and Hannah L. Whiting Scholarship.— Founded by Mrs. Hannah L. Whiting, of Hingham.

The Martha Goldthwaite Memorial Scholarship.— Founded by Willard Goldthwaite, of Salem.

The Andrew J. Clark Memorial Scholarship.— Founded by Mrs. Abbie B. Clark, of Orange.

The Sarah E. Sayles Memorial Scholarship.— Founded by Albert W. Sayles, of Lowell.

The Cousens Scholarship.— Founded by John E. Cousens, of Brookline, in the name of John E. and Sarah C. Cousens.

The Benjamin F. Spinney Scholarship.— Founded by Benjamin F. Spinney, of Lynn.

The Henry F. Barrows Scholarship.— Founded by Henry F. Barrows, of North Attleboro.

The Ellery E. Peck Memorial Scholarship.— Founded by Henry Rollins, of Bangor, Me. The income of this scholarship is not at present available.

The J. H. Morley Memorial Scholarship.— Founded by Herbert Morley Small, of Baldwinville.

The Edwin H. Chapin Memorial Scholarship.— Founded by friends of the late E. H. Chapin, D.D., in New York City.

The Thomas A. Goddard Memorial Scholarship.— Founded by Mrs. Mary T. Goddard, of Newton.

The Hosea Ballou, 2d, Memorial Scholarship.— Founded by Mrs. Mary T. Goddard, of Newton.

The Henry E. Cobb Scholarship.— Founded by the late Henry E. Cobb, of Boston.

The Mary Ann Ward Scholarship. — Founded by Sylvester L. Ward, of Boston.

The Maria P. Winn Scholarship. — Established from a bequest of the late Mrs. Maria P. Winn, of Woburn.

The Joseph D. Peirce Memorial Scholarship.— Founded by the children and other relatives of the late J. D. Peirce, D.D., of Attleboro.

The Scholarship of the Class of 1857. — Founded by the late Heman Allen Dearborn, for the benefit of women students. This scholarship is not available the present year.

Two John and Lucy H. Stowe Scholarships. — Two scholarships of one hundred dollars each for women students, founded by Mrs. Lucy H. Stowe, of Lawrence.

Two Simmons Scholarships. — Founded by the will of Robert F. Simmons, of Attleboro, in the names of Mary F. and Robert F. Simmons.

The Joshua S. and Harriet N. White Scholarship. — Founded by the late Joshua S. White, of Pawtucket, R. I.

The John B. Perkins Scholarship. — Founded by Ann Maria Perkins, of Medford.

Two Barnard Scholarships. — Founded by Caroline M. Barnard, of Everett.

The Bartlett Scholarship.— Founded by Mrs. Nancy Bartlett, of Milford.

The B. H. Davis Scholarship. — Founded by the Rev. B. H. Davis, of Weymouth, for the benefit of students of the College of Letters who are preparing to enter the Christian ministry.

The Latimer W. Ballou Scholarship. — Founded by Latimer W. Ballou, of Woonsocket, R. I.

The Nathaniel White Scholarship. — Founded by Armenia S. White, of Concord, N. H.

The Rhode Island Scholarship. — Founded by several persons in Rhode Island.

The following scholarships of fifty dollars each are awarded annually : —

The A. A. Miner Scholarship. — Founded by A. A. Miner, D.D., of Boston.

The Perkins Scholarship. — Founded by James D. Perkins, of Brooklyn, N. Y.

The Moses Day Scholarship. — Founded by the late Moses Day, of Roxbury.

The John and Lucy H. Stowe Scholarship. — Founded by Mrs. Lucy H. Stowe, of Lawrence, for the benefit of women students.

THE JOSEPH H. WALKER SCHOLARSHIP. — Founded by Joseph H. Walker, of Worcester.

THE GEORGE C. THOMAS SCHOLARSHIP. — Founded by George C. Thomas, of Philadelphia, Pa.

THE ALBERT W. SAYLES SCHOLARSHIP. — Founded by Albert W. Sayles, of Lowell.

The following scholarships are awarded under special conditions: —

THE GREENWOOD PRIZE SCHOLARSHIP IN ORATORY. — Founded by the late Mrs. Eliza M. Greenwood, of Malden, and given to such student as shall have made, as the result of faithful work, together with at least a fair degree of attainment, the greatest improvement in Oratory.

THE WENDELL PHILLIPS MEMORIAL SCHOLARSHIP. — Founded to perpetuate the name, fame, and influence of Wendell Phillips. This scholarship is to be awarded to a student who has completed the Freshman and Sophomore years of his course, and he is to have the benefit of it during the remainder of his course. The beneficiary must be of sound body, high character, and ability in declamation and debate, and must comply with certain special conditions, including participation in a competitive debate of the applicants at the end of the Sophomore year. The specific conditions governing the award of this scholarship may be obtained by those intending to apply therefor of the Secretary of the Faculty, to whom application should be made early in the Sophomore year. The income of this scholarship is at present seventy dollars.

LOAN FUND FOR WOMEN. — The Woman's Universalist Missionary Society of Massachusetts maintains a fund which is loaned to deserving women students, in sums of one hundred dollars, at four per cent. This fund now amounts to about three thousand dollars.

APPOINTMENTS. — The pay of a monitor is *fifteen dollars* a year; that of the bell-ringer and the organist, *one hundred and fifty dollars* each.

PRIZES.

GODDARD PRIZES. — In the second term of the academical year four prizes of *fifteen dollars* each are assigned from the Goddard Prize Fund, as follows: —

A prize for the best examination, by a member of the Junior or Senior class, on the Agricola of Tacitus, or the sixty-fourth poem of

Catullus, or a play of Plautus or Terence, or the Ars Poetica of Horace.

A prize for the best examination in Plato's Symposium, or the Agamemnon of Æschylus, including an account of the author and his works.

A prize for the best Latin prose translation by a member of the class pursuing Latin 6, of the fifth, sixth, and seventh sections of Chapter LV. in Lidell's History of Rome.

A prize for the best examination in the Mathematics of the first year.

The translations must be left at the President's office by the first day of May, in sealed envelopes, accompanied by sealed letters containing the authors' names.

RHETORICAL PRIZES.— Six prizes are awarded, as follows : —

Two prizes, of *twenty* and *ten dollars* respectively, to the best readers among students who have taken six term hours in Oratory.

Two prizes, of *twenty* and *ten dollars* respectively, to students who have taken four term hours in Oratory, for the best exhibition of improvement and skill in elocution.

Two prizes, of *twenty* and *ten dollars* respectively, on the same conditions, to students who have taken two term hours in Oratory.

The rhetorical prizes are awarded by a committee, chosen by the Faculty, who judge the work presented by the competitors upon the public day appointed for that purpose. In order to enter the public competition, candidates, as well as their selections, must be approved by the Professor of Oratory.

ENTRANCE EXAMINATION PRIZES. — Two prizes, of *thirty* and *twenty dollars* respectively, are awarded for the best entrance examinations. No one will be considered a candidate for such prize unless he has passed at the regular examinations in all the subjects required for admission to the College, and has been admitted without conditions. These prizes are payable at the end of the first term in College.

The foregoing prizes are not awarded unless, in the opinion of the respective judges, there is sufficient merit in the several contests to warrant their distribution.

HONORS AND DEGREES.

Final Honors will be conferred at Commencement upon any member of the graduating class in the Courses in Liberal Arts who shall have attained Grade A in approved subjects aggregating not less than eighteen term hours in a major department, and an average Grade B in the collateral subjects. Subjects marked in the Catalogue with a star (*) will not count for Honors. Those marked with a double star (**) will be counted for Honors only when special requirements, to be defined by the instructors, have been complied with. Final Honors will be conferred only upon recommendation of the head of the department in which Honors are desired.

Final Honors will be conferred at Commencement upon any member of the graduating class in the Engineering Courses who shall have complied with the following conditions: —

In the two years immediately preceding graduation, —

1. He must have attained Grade A in the equivalent of six hours a week for a year in the subject in which he desires Honors.
2. He must also have attained Grade A in extra work in this or a cognate subject equivalent to three hours a week for a year.
3. He must have attained Grade B in the average of all his studies during this period.

The following subject in the Engineering Courses is open for Honors, — Electricity.

Honorable Mention will be made in the Commencement program and in the Annual Catalogue of a student who has attained, during the two years immediately preceding graduation, Grade A in nine term hours and not less than Grade B in three additional term hours of approved work in one department. Subjects marked in the Catalogue with a star (*) will not be counted for Honorable Mention. Subjects marked with a double star (**) will be counted for Honorable Mention only when special requirements, to be defined by the instructor, have been complied with.

The Degree of Bachelor of Arts will be conferred at Commencement by the Trustees, on recommendation of the

Faculty, upon students who shall have complied in a satisfactory manner with the conditions stated on pages 54 to 56.

THE DEGREE OF BACHELOR OF PHILOSOPHY will be conferred upon students who shall have complied with the conditions stated on pages 54 to 56, for the attainment of that degree.

THE DEGREE OF BACHELOR OF SCIENCE will be conferred upon students who shall have completed the General Course in Science, the Special Course in Biology or Chemistry, or the Medical Preparatory Course, complying in a satisfactory manner with the conditions stated on pages 91 to 98.

THE DEGREE OF BACHELOR OF SCIENCE in Civil Engineering, in Electrical Engineering, or in Mechanical Engineering will be conferred upon students who shall have completed the required course, as defined on pages 101 to 131.

Students of the courses in Liberal Arts may so arrange their elective work as to make it possible to obtain the degree of Bachelor of Science in Civil Engineering, Electrical Engineering, or Mechanical Engineering, after a graduate course of one year in the Engineering Department.

For the advanced degrees of MASTER OF ARTS, DOCTOR OF PHILOSOPHY, CIVIL ENGINEER, ELECTRICAL ENGINEER, and MECHANICAL ENGINEER, see Graduate Department, page 132.

THE DIVINITY SCHOOL.

Faculty of the Divinity School.

ELMER H. CAPEN, D.D., President.

CHARLES H. LEONARD, D.D., Dean.
Goddard Professor of Homiletics and Pastoral Theology.

WILLIAM G. TOUSEY, A.M., B.D.,
Professor of Ethics and Philosophy of Theism.

GEORGE T. KNIGHT, D.D., Secretary.
Professor of Church History, also in charge of Systematic Theology.

GEORGE M. HARMON, A.M., B.D.,
Professor of Biblical Theology.

DAVID L. MAULSBY, A.M.,
Professor of Oratory.

WARREN S. WOODBRIDGE, A.M., B.D.,
Woodbridge Professor of Applied Christianity.

NON-RESIDENT LECTURERS.

EDWIN C. BOLLES, D.D., Ph. D.,
Lecturer on The Worth of Avocation to the Minister.

HENRY W. RUGG, D.D.,
Lecturer on Christian Missions.

WILLIAM H. DEARBORN, B.D.,
Lecturer on The Preacher's Intellectual Resources.

FRANK O. HALL, B.D.,
Lecturer on The Work of the Ministry.

RICHARD EDDY, D.D.,
Lecturer on The History of Universalism.

HENRY B. METCALF, A.M.,
Lecturer on The Ministry from a Layman's Point of View.

THE
JOHN CRERAR
LIBRARY.

MINER HALL.

The Divinity School.

The Divinity School is one of the departments of Tufts College, the general advantages of which are enjoyed by all its members in common. The College Library, the Museum of Natural History, the Gymnasium, are accessible to all. Courses of study and lectures in the College of Letters are open to the Divinity Students, subject, however, to the discretion of the Faculty. The graduates of the Divinity School, in common with the graduates of the other departments, are enrolled in the Quinquennial Catalogue of the College, and are eligible to membership in the Alumni Association of Tufts College.

REQUIREMENTS FOR ADMISSION.

Candidates unknown to the Faculty must bring satisfactory testimonials as to character. It is expected that they will present themselves on the day preceding the first day of the academic year.

Bachelors of Arts are admitted to a three-years course, without examination, to be candidates for the degree of Bachelor of Divinity. Candidates for this degree who are not Bachelors of Arts are required to take a four-years course, and to sustain a satisfactory examination on average passages from the Latin of Cæsar, Cicero, and Virgil; and on average passages from the Greek of Xenophon, Homer, and the Gospels. Ability to read simple prose in French or German, and to write in French or German a paragraph upon an assigned subject, is accepted as an alternative for the requirement in Latin. They are also required to pass an examination in Greek, Roman, English, and American History; in Rhetoric; in English Literature and in English Grammar and Composition, in which the requirement is as follows: —

English Grammar and Composition. — Spelling, punctuation, structure of sentences, correct use of words, clearness of expression.

The examination will consist (1) in criticising specimens of incorrect English; (2) in writing a short composition on a subject assigned. Subjects for composition will be drawn from the following standard works in English literature. All the books named for the given year are to be read, and, from two or three of them, subjects will be as signed at the time of examination.

For 1900. — Dryden's Palamon and Arcite; Pope's Iliad, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in *The Spectator;* Goldsmith's Vicar of Wakefield; Scott's Ivanhoe; De Quincey's Flight of a Tartar Tribe; Cooper's Last of the Mohicans; Tennyson's Princess; Lowell's Vision of Sir Launfal; Shakespeare's Macbeth; Milton's Paradise Lost, Books I and II; Burke's Speech on Conciliation with America; Macaulay's Essays on Addison and Milton.

For 1901. — George Eliot's Silas Marner; Pope's Iliad, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in *The Spectator;* Goldsmith's Vicar of Wakefield; Scott's Ivanhoe; Shakespeare's Merchant of Venice; Cooper's Last of the Mohicans; Tennyson's Princess; Coleridge's Rime of the Ancient Mariner; Shakespeare's Macbeth; Milton's L'Allegro, Il Penseroso, Comus and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essays on Addison and Milton.

For 1902. — George Eliot's Silas Marner; Pope's Iliad, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in *The Spectator;* Goldsmith's Vicar of Wakefield; Scott's Ivanhoe; Shakespeare's Merchant of Venice; Cooper's Last of the Mohicans; Tennyson's Princess; Coleridge's Rime of the Ancient Mariner; Shakespeare's Macbeth; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Burke's Speech on Conciliation with America, Macaulay's Essays on Addison and Milton.

Applicants from other theological institutions whose course of study is the equivalent of that pursued in this institution will be received *ad eundem.*

Course of Study.

SUB-JUNIOR CLASS.

Logic. — The First Principles of Logic; Concepts and Propositions; Immediate Inference; Deduction; Induction; Analogy; Hypothesis. *Four hours a week, first half-year.*

PROFESSOR TOUSEY.

Psychology. — Elementary; The Relations between Mind and Body; The Principles of Modern Psychology; James's Smaller Psychology as a text-book; Lectures; Experiments. *Three hours a week, second half-year.* DR. CUSHMAN.

English. — One or more courses to be selected, under direction, from those offered in the College of Letters (see General Catalogue, pages 58–60). *Three hours a week.*

New Testament. — History of the Times of Jesus. *Two hours a week.* Greek of the New Testament. *One hour a week.*

PROFESSOR HARMON.

Oratory. — Class Exercises in Vocalization and Gesture. The Principles of Oratory exemplified in practice. *One hour a week.*

PROFESSOR MAULSBY.

A Science or Language Study. — (To be selected under direction of the Faculty.) *Three hours a week.*

JUNIOR CLASS.

Logic. — Fallacies; Analysis of Arguments; Ethics of Belief. *Two hours a week, first half-year.* PROFESSOR TOUSEY.

Old Testament. — General Introduction. *Three hours a week.*

PROFESSOR WOODBRIDGE.

New Testament. — Criticism of the Synoptic Gospels, Textual and Historical; Hermeneutics; Life and Teachings of Jesus from the Greek of the Synoptic Gospels, with studies from the life of his times. *Four hours a week.* PROFESSOR HARMON.

Church History. — History of the Church, of the Sects, and of Doctrines, from the Apostles to the Present Time; History of Doubt. *Four hours a week.*

PROFESSOR WOODBRIDGE and PROFESSOR KNIGHT.

Homiletics. — History of Preaching; The Idea and Structure of the Sermon; Homiletic Analysis. *Three hours a week, second half-year.* PROFESSOR LEONARD.

Oratory. — Practice in the reading of Scripture, Hymns, and in formal and extemporaneous speaking. *One hour a week.* PROFESSOR MAULSBY.

MIDDLE CLASS.

Old Testament. — Special studies in Old Testament Literature. *Three hours a week.* PROFESSOR WOODBRIDGE.

New Testament. — Criticism of Acts and the Epistles; History and Doctrines of the Apostolic Church, from the Greek of Acts and the Epistles; Criticism, Exegesis, and Doctrines of the Johannine Writings. *Four hours a week.* PROFESSOR HARMON.

Ethics. — The Moral Nature; Ethical Theory; Practical Ethics; Ethics and Theism. *Three hours a week.* PROFESSOR TOUSEY.

Systematic Theology. — Theology; Anthropology; Soteriology; Eschatology; Critical Study of Modern Doctrines. *Four hours a week, first half-year; three hours a week, second half-year.* PROFESSOR KNIGHT.

Homiletics. — Study of Sermons of Eminent Preachers; Lectures; Sermon Writing and Preaching. *Three hours a week.* PROFESSOR LEONARD.

Applied Christianity. — The Relations of the Church to the Life of the Individual and to Social Problems. *Two hours a week, second half-year.* PROFESSOR WOODBRIDGE.

SENIOR CLASS.

Comparative Theology. — The Religions of Ancient Egypt and Chaldæa; Hinduism; Buddhism; Confucianism; Taouism; Parseeism; Mohammedanism. *Three hours a week, first half-year.* PROFESSOR KNIGHT.

Philosophy of Theism. — The Final Problem; Limits of the Intelligence; Theistic Arguments; Final Cause in Nature; Anti-Theistic Theories. *Three hours a week.* PROFESSOR TOUSEY.

Economics. — Lectures on the History of Finance; Methods and Functions of Banking; Taxation, including Principles of Civil Government. Text-book work, Lectures, and Independent Investigations dealing with the History of Economics, Theories of Production, Consumption, Distribution, etc.; Problems of Profits, Wages, and Labor. *Three hours a week, first half-year.*

PROFESSOR METCALF.

Homiletics. — Homiletic Analysis; Lectures on Preaching; Composition and Delivery of Sermons. *Three hours a week.*

PROFESSOR LEONARD.

Applied Christianity. — The Relations of the Church to the Life of the Individual and to Social Problems. *Two hours a week, first half-year.* The Pastor's Personal Qualifications and Duties; Organized Work in the Parish; The Conduct of Public Worship; The Mode of Conducting the Special Services of the Church; Actual Work in Missions and Charities. *Four hours a week, second half-year.*

PROFESSOR WOODBRIDGE and PROFESSOR LEONARD.

Departments of Instruction.

PSYCHOLOGY.

The course in Psychology is elementary and includes three hours a week for a half-year. The first topic is the Physiological Structure of the Brain and the Physiology of Special Senses. Then the psychological phenomena are studied. The method of the course is strictly to review, in a scientific way, the fundamental principles of modern psychology. The aim includes not only scientific instruction and practical self-culture, but also has reference to professional uses.

LOGIC.

The Sub-Juniors receive instruction in the usual topics of an academic course. Considerable time is given to logical analysis and the employment of the inductive method as respects both discovery and proof.

The Juniors are exercised more especially in the application of logical principles. A review of the fallacious tendencies of the mind is followed by an extended study of Fallacies, as exemplified in the practical reasoning of men. The course concludes with a brief study in the Ethics of Belief. Under this head the nature and conditions of belief are discussed, the general principles of evidence reviewed, and certain current misconceptions exposed, the aim being to enforce the duty of rationalizing our beliefs, and while pointing out the limitations of the reason, to develop confidence in its actual findings, and a proper fortitude of conviction.

ENGLISH.

The efficiency of the clerygman is so largely conditioned by literary ability that much emphasis is placed upon the study of English. Opportunity is given to the student to elect in the College of Letters, in the direction both of composition and English literature. Well-directed practice in English composition affords direct aid in the formation of literary style, while the influence of the study of the masterpieces of literature, though indirect, is no less powerful in developing a feeling for appropriate expression. Moreover, the great poets and prose writers abound in suggestion for the public speaker both in their thought and its expression. In consequence, divinity students are expected to take such of the offered subjects as are adapted to their individual needs and available time. Some are advised to continue this work even throughout their whole theological course.

OLD TESTAMENT.

This study has in view a knowledge of the thought and religious life of the Israelites, through the history of their literature and a special study of selected books. For the present, in the absence of a special instructor in this department, work in the Old Testament is confided to Professor Woodbridge. Other teachers in the school, however, will deal with phases of this study according as the subject is related to their special work.

NEW TESTAMENT.

In the Sub-Junior year, the history of the Jewish people both in Palestine and in other lands is pursued to acquaint the class with the preparation for Christianity in the sentiments of the people, in the character of their institutions, and in their social and religious condition.

The historical conditions of affairs in the Græco-Roman world are also studied for their bearing upon the same question.

In the Junior year the sources of the text of the New Testament are considered, with the principles employed in determining the true text, the aim being to render the student intelligent as to the procedure in Textual Criticism, and the bearing this procedure has on the work of exegesis. The History of the Canon for the first two centuries and the historical and literary criticism of the Gospels are next treated, to secure on the part of the student an understanding of the principal problems involved and the grounds of their discussion, the habit of sober and sound criticism, and a knowledge of the nature and contents of the Gospel writings.

In dealing with the Life of Jesus, notes on methods of correct interpretation are given the class, and their application is required in its exegetical work. The significant points and phases in the life and ministry of Jesus are selected and considered, passages from the Greek of the Synoptic Gospels being employed, to obtain a knowledge of the mind of Jesus, his relations to the parties and people of his time, the methods he pursued in his ministry, the course of facts in his life, and the doctrines he taught. Incident to this study, the critical points in dispute are considered as they arise. Historical and archæological questions are examined in their natural connections.

In the Middle year the History and Doctrines of the Apostolic Church are studied, the Book of Acts being used as the basis. This writing is first examined as an historical authority; passages from it in Greek are chosen, giving the significant stages in the external growth of the church and in its internal development; and these are studied with the aim to trace the first realization of the life of Jesus in the world. The Epistles of St. Paul are critically examined in the order of their origin in his ministry. Critical and exegetical studies of Hebrews and of the Johannine writings conclude the work.

As a part of this study the Theology of the New Testament is taken up. The attempt is made to discover the teaching of Jesus contained in the Synoptic Gospels. With this teaching as the basis, the individual interpretations of the several Synoptists, of the author of the Fourth Gospel, of St. Paul in his earlier and later epistles, of the author of Hebrews, and the writers of the Catholic Epistles are compared, each writing being first considered by itself. The aim is to obtain the common elements of teaching, and also what is distinctive in each writer and time.

CHURCH HISTORY.

The purpose is to secure a knowledge of the leading facts and forces in the history of the Christian Church in its various branches. By such a knowledge, discovering the causes now at work in religion, the student obtains a grasp of present facts and problems such as he can obtain from no other source. Incidentally he becomes familiar with theological terms, and is furnished with the tools of theological work. In general, since in some degree the individual grows as the mass has grown, he finds in this study an education, an orderly development of his faculties.

The topics generally studied in regard to each period are: the External Growth of the Church and Its Relations to the State; the Internal Organization; Intellectual Life and Doctrine; Moral Life; the Form and Substance of Worship. In the latter part of the year special study is made of the chief religious sects in the United States, and, lastly, of the History of Doubt.

The books used by the student are mostly contained in the Library of the College and in that of the Universalist Historical Society. They include Migne's edition of the Fathers; translations of the Ante-Nicene Fathers, and others; the chief secondary authorities on general Church History, such as the works of Schaff, Fisher, Neander, Alzog; and the special historical works of Fisher, Müller, Dorner, Briggs, Eddy, Ballou; and of the American Church History series.

In preparation for the regular class-room exercise, the student is provided with an analysis of each topic in order, and with references to original and secondary authorities. The student brings the result of his investigation to the class-room for criticism by his associates and instructor. At the completion of each topic the results are organized, and a written review held, the papers of which are returned, with comments as to truthfulness and mode of handling.

The students are also instructed in the methods of original investigation from primary authorities; and especially in the history of doctrines, they prepare several pieces of original work during the year.

COMPARATIVE THEOLOGY.

The primary aim of this study is a general knowledge and a catholic temper regarding the Non-Christian religions. A secondary utility is found in that a candid study of the excellencies and defects of many religions renders the student more able to reject the false, and more inclined to rest in the true, and to give it his confidence and strength.

The sources of information to which the student is referred are the Records of the Past, Müller's edition of the Sacred Books of the East, Müller's own writings, the series entitled Non-Christian Religious Systems; and, in addition, the works of Rawlinson, Wilkinson, Sayce, Johnson, Barth, Legge, Oldenberg, Edkins, Haug, and others. Considerable use is also made of articles in the Encyclopædia Britannica.

The religions studied are those of ancient Egypt and Chaldæa; Hinduism, ancient and modern; the religions of Gautama Buddha, Confucius, Lao-tse, Zoroaster, and Mohammed.

The chief topics noted are: the Deity; the Forms and

Meaning of Worship; the Theory of Ethics, and the Sanctions of Moral Life, including the Scheme of Salvation; the Actual Condition of the People representing each religion.

For the study of each topic in turn, the class is furnished with a syllabus and references. The results of their investigations are criticised and co-ordinated by students and instructor in the class-room.

The main purposes of this study are further secured by frequent inductive reviews, oral and written.

ETHICS.

Analytical and inductive study of the moral experience is followed by an attempt to develop a correct Moral Theory. Attention is given to the more important questions in ethical philosophy. Such doctrines as Sentimentalism, Hedonism, Utilitarianism, Intuitionalism, Naturalism, and Determinism are studied not merely in a critical spirit, but with a view to discover the special aspects of truth for which they stand.

During the second half of the year the class attends more especially to Practical Ethics, dealing with the leading problems of the Individual and the Social Life, and giving particular attention to such subjects as Rights, Education, Charities, State Aid, Temperance, Socialism, etc. Some attention is also given to Casuistry. The course concludes with a review of what is distinctively known as Christian Ethics. The instruction throughout is shaped to bring into clearness the fundamental principles of morality, and to show their importance in the conduct of the personal life and in the moral guidance of others.

PHILOSOPHY OF THEISM.

After some discussion of Agnosticism and other antecedent objections to Theism, the various modes of the theistic argument are reviewed, their grounds scrutinized, and their logical value carefully considered. In discussing the attributes of God, and his relation to the universe, Pantheism and Pessimism receive somewhat special notice. The general method here, as in Ethics, is to employ treatises available as texts, and to supplement them by means of annotations, lectures, and parallel readings, the aim being to lead the student to the sources of evidence, and to establish a vigilant and correct method of inquiry. Much importance is attached to the dialectic of the class-room as securing a ready command of resources, and as a corrective of ill-defined notions and hasty inference. An effort is made to treat subjects in the light of contemporary criticism and the latest developments of science; and, by testing and chastening conclusions, to provide against fanaticism on the one hand and frivolity of judgment on the other.

SYSTEMATIC THEOLOGY.

The purpose is, primarily, to assist the student to think independently on theological subjects, and to abide in the consequences. In pursuing this purpose attempt is made to co-ordinate the products of Biblical Theology, Religious History, Natural Theology, Ethics, and, indeed, of all the proper sources of material, and thus to produce a scientific theology. It is believed that such a system will deserve and receive the student's confidence, and will enlist his energies.

The subject has four great divisions, — the Doctrine of God, the Doctrine of Man, the Doctrine of Salvation, and the Doctrine of the Future Life. The traditional sub-divisions are noted historically, but are accepted only so far as they seem to rest on essential principles or the real relations of truth.

The method includes several stages: —

1. The outline history of thought on the topic in hand, or the analysis and classification of opinions and theories according to their logical relations.

2. The collection of the facts, so far as given in the present state of knowledge, and the criticism of the theories on the basis of the facts.

3. The organization of the results into a scientific product.

4. Illustrative applications to practical problems, — ecclesiastical, political, social, and personal.

This method requires frequent reference to books used in the departments whose products are here co-ordinated, and to the theological works of A. H. Strong, Charles Hodge, James Martineau, Robert Flint, J. A. Dorner, H. Martensen, J. S. Dodge, and other representative teachers of all times and faiths.

The student is furnished with references to the various sources of material, he is instructed in the method of inquiry, and his results are criticised in the class-room. The occasional written examinations require original work, in part, and one original essay from each student is required within the year.

HOMILETICS.

The course in Homiletics covers one-half of the Junior year and all of the Middle and Senior years, and includes the study of the most characteristic and instructive periods in the history of preaching; dictations and lectures on the idea and structure of the Sermon; analyses of portions of the Old and the New Testaments, with a view to the homiletical use of texts; the study of printed sermons, with special reference to form, expression, and the character and range of illustration; the composition and delivery of sermons, not less than six during the year, all of which are criticised by the class and by the professor; lectures during the Senior year on Invention and Arrangement of Material, Modes of Development, Style in Spoken Discourse, Helps in Sermon-Preparation, Illustrations and Use of Anecdote, the Homiletic Habit, Modern Schools of Preaching, Philosophy of Preaching, Personality in Preaching, Character and Preaching.

APPLIED CHRISTIANITY.

I. The history of Christianity is traced from its beginnings, with the special aim to discover by what methods the application of Christian principles has been secured and what results have followed.

II. The second part of this course is devoted to a study of

Christian principles in their present-day applications, and of the Christian Church as it exists in modern times. Two principles are assumed as fundamental. (1) The office of the church is primarily that of spiritual culture. (2) The mission of the church is primarily to the individual. With these principles in view, an examination is made of the various forms of Christian activity, with a view to ascertain their value and place in the church. The discussion includes the more personal ministrations of the church to its immediate constituency, and its more extended activities in society. This last involves questions relating to socialism, good citizenship, economic and moral reforms, and the like.

III. The final topic in this department is the pastor's office. The subjects discussed relate to the more private and personal care which the minister exercises toward the members of a single congregation, or toward others whom he may be expected to influence. Careful study is invited to the qualifications, spiritual, mental, social, of a good pastor, the methods of forming and strengthening a parish, the conduct of public worship, and the mode of conducting the special services of the church, — baptism, confirmation, the Lord's Supper, marriage, and the burial of the dead. The object of this part of the course is the practical preparation of the pastor for his sacred duties.

The work (II and III) of the Middle and Senior years is supplemented with lectures by clergymen and others, who are actively engaged in missions and charities; and the students are encouraged to visit churches and stations in the neighboring cities, that they may study methods in the field.

ORATORY.

The object of the instruction in the Department of Oratory is a natural, impressive, and reverent manner of reading the Bible and the hymn-book, and also to cultivate in preaching a delivery that shall be forcible and sincere. To this end the work of the first year involves consideration of the fundamental principles that underlie all oratory, accompanied by practice to assimilate these principles. In the second year the work becomes specifically adapted to the needs of students of divinity, and includes Scripture and hymn reading, and practice in both written and unwritten discourse.

PHYSICAL TRAINING.

Regular exercise in the Gymnasium is ordinarily required three hours a week of men students from the middle of November to the middle of March during the two years following entrance. The kind of exercise prescribed for each man depends on his physical condition, as determined by careful medical examination. Provision is made for continuing physical exercise throughout the whole course, according to individual needs.

General Information.

RELIGIOUS EXERCISES.

Devotional exercises, conducted by the professors and the students, are held daily in the chapel. Members of the upper classes prepare sermons and preach them in turn before the class. An active branch of the Young People's Christian Union holds regular meetings for religious conference.

EXAMINATIONS.

Frequent written reviews are held in all departments; and when any subject is completed, the students are required to pass a written examination thereon.

LIBRARIES AND LECTURES.

Students have free access to the general library of the College and to the valuable library of the Universalist Historical Society. Important public libraries of Boston are open to students for consultation.

Supplementary lectures, which bear upon the general work of the Christian ministry and upon special subjects of study, are given at intervals throughout the year by well-known clergymen of the vicinity.

ELECTIVE STUDIES.

Students are permitted to elect studies in other departments of the College, subject, however, to the discretion of the Faculty. Opportunities for pursuing advanced studies are offered to graduates and to others sufficiently qualified.

GENERAL FACILITIES.

Important facilities for general improvement are offered to students, in the valuable libraries and museums of Boston and vicinity. Elaborate courses of lectures on scientific, social, and literary subjects are presented to the public from time to time. The most noted divines of New England officiate every Sunday within easy distance, and may be studied by the student in respect to their teachings and their methods. It is the policy of the school to encourage the judicious use of these important instrumentalities of culture.

THE DEGREE OF MASTER OF ARTS.

THE DEGREE OF MASTER OF ARTS is conferred at the same time with the degree of Bachelor of Divinity upon Bachelors of Arts of Tufts College who have pursued with distinction the full course for B.D. This degree is conferred under the same conditions on Bachelors of Arts of other colleges whose courses of study have been equivalent to the course for which the degree of A.B. is given by Tufts College.

This degree may also be received by Bachelors of Arts who do not apply for the degree of Bachelor of Divinity, after taking with credit an approved course of one year or more in this school, under conditions defined in the statement of the Graduate Department.

BUILDINGS FOR THE USE OF THE DIVINITY SCHOOL.

Miner Theological Hall contains eight large, well-lighted, and well-ventilated lecture-rooms, and a special room for the meetings of the Faculty. Until other buildings are provided one of the rooms in this hall is used for the Historical and Reference Libraries, and one is appropriately furnished for the Religious Services of the school. A third room in the same hall is furnished as a parlor, and known as the Maria Miner Reception-Room.

Paige Hall, the dormitory of the Divinity School, contains thirty-six single rooms, heated by steam and lighted by gas. Each room is carpeted, and provided with all necessary furniture — except sheets, blankets, pillow-cases, and towels.

Rooms are assigned in the order of application, but no room is reserved for any applicant who does not appear within one week of the opening of the college year.

The women students in the Divinity School may find rooms and board in Metcalf Hall on the same terms and subject to the same conditions as apply to the women who enter the College of Letters.

EXPENSES AND PECUNIARY AID.

Students in the Divinity School are charged *one hundred dollars* annually for tuition. This charge includes the privilege of occupying a room in Paige Hall, and provision for heating and caring for it. A remission of one-half of this amount may be made by the Executive Committee of the Trustees to students who cannot be accommodated in Paige Hall or who live at home. The necessary expenses for board, washing, gas, and gymnasium charges do not exceed two hundred dollars a year. The General Convention of Universalists aids students by a free scholarship not exceeding one hundred and twenty-five dollars a year to any one student, subject always to the recommendation of the Faculty of the Divinity School; and the Faculty is authorized to assign special scholarships to those whose circumstances require this extra help. Those students, also, who are in the regular course are permitted to preach, under the direction of the Faculty, during the year and a half preceding their graduation. In this way they may add to their pecuniary resources.

BONDS AND DEPOSITS.

Each student who enters the Divinity School is required to deposit with the Treasurer of the College either a bond, with two satisfactory sureties, for the amount of one hundred dollars, or the sum of fifty dollars in money, which sum will bear interest at the rate of four per cent yearly, and will be returned to the student when he leaves the Divinity School, his term bills first being paid in full.

LICENSE TO PREACH.

The regular time for applying for licensure is near the close of the first half of the Middle year. Before that time the members of the Divinity School are not allowed to preach.

SCHOLARSHIPS AND SPECIAL FUNDS.

THE GREENWOOD SCHOLARSHIP. — The income of one thousand dollars, bequeathed by the late Mrs. Eliza M. Greenwood, of Malden, is given in prizes to members of the Divinity School for excellence in the Department of Oratory.

THE DOCKSTADER SCHOLARSHIP. — The income of ten thousand dollars, given by George A. Dockstader, of New York, is appropriated to the aid of needy and worthy students.

The following scholarships of fifty dollars each are for the benefit of students in the Divinity School: —

THE WHITTEN SCHOLARSHIP. — Founded by Mrs. Maria F. Whitten, of Cambridge.

THE HOLT SCHOLARSHIP. — Founded by Miss Celia Holt, of Stafford, Conn.

THE HENRY L. BALLOU SCHOLARSHIP. — Founded by Susan Ballou, of Woonsocket, R. I.

TWO BRADLEE SCHOLARSHIPS. — Founded by the late Caleb D. Bradlee, D.D., of Brookline.

TWO GOLDTHWAITE SCHOLARSHIPS. — Founded by the late Willard Goldthwaite, of Salem.

THE SARAH ELIZABETH PERKINS SCHOLARSHIP. — Founded by James D. Perkins, of Brooklyn, N. Y.

The income of five hundred dollars, given by REV. JOHN VANNEVAR, is used in the purchase of books for the Department of Homiletics.

THE MEDICAL SCHOOL.

Faculty of the Medical School.

ELMER H. CAPEN, D.D., LL.D., PRESIDENT.

HAROLD WILLIAMS, A.B., M.D., 528 Beacon St., Boston.
Dean and Professor of the Principles and Practice of Medicine.

CHARLES P. THAYER, A.M., M.D., 74 Boylston St., Boston.
SECRETARY *and Professor of General, Descriptive, and Applied Anatomy.*

HENRY W. DUDLEY, M.D., Abington.
Professor of Pathology.

FRANK G. WHEATLEY, A.M., M.D., North Abington.
Professor of Materia Medica and Therapeutics.

SAMUEL G. WEBBER, A.B., M.D., 419 Boylston St., Boston.
Professor of Neurology.

ERNEST W. CUSHING, A.B., M.D., LL.D., 168 Newbury St., Boston.
Professor of Abdominal Surgery and Gynæcology.

ARTHUR E. AUSTIN, A.B., M.D., Tufts College Medical School.
Professor of Medical Chemistry and Toxicology.

CHARLES A. PITKIN, A.M., PH.D., South Braintree.
Professor of General Chemistry.

JOHN L. HILDRETH, A.B., M.D., 14 Garden St., Cambridge.
Professor of Clinical Medicine.

HENRY B. CHANDLER, M.D., 34½ Beacon St., Boston.
Professor of Ophthalmology.

WALTER CHANNING, M.D., Brookline.
Professor of Mental Diseases.

FREDERIC L. JACK, M.D., 215 Beacon St., Boston.
Professor of Otology.

GEORGE H. WASHBURN, A.B., M.D., 311 Marlborough St., Boston.
Professor of Obstetrics.

FREDERIC M. BRIGGS, A.B., M.D., 31 Massachusetts Ave., Boston.
Professor of Clinical Surgery.

CHARLES G. CUMSTON, B.M.S., M.D., 871 Beacon St., Boston.
Assistant Professor of Surgical Pathology.

TIMOTHY LEARY, M.D., Tufts College Medical School.
Assistant Professor of Pathology and Instructor in Bacteriology.

HORACE D. ARNOLD, A.B., M.D., 188 Warren St., Roxbury.
Assistant Professor of Clinical Medicine.

ALBERT PRESCOTT MATHEWS, S.B., PH.D., Tufts College Medical School.
Assistant Professor of Physiology.

OTHER INSTRUCTORS.

HOWARD S. DEARING, A.M., M.D., 607 Tremont St., Boston.
Lecturer in Military Medicine and Instructor in Clinical Medicine.

HENRY J. BARNES, M.D., 429 Beacon St., Boston.
Lecturer on Hygiene.

HERBERT WARREN WHITE, M.D., 151 Humboldt Ave., Roxbury.
Instructor in Theory and Practice of Medicine.

WALTER J. OTIS, M.D., 267 Beacon St., Boston.
Lecturer on Rectal Diseases.

WILLIAM S. BOARDMAN, A.B., M.D., 57 Hancock St., Boston.
Lecturer on Laryngology.

GEORGE A. BATES, D.D.S., Auburndale.
Lecturer on Histology.

GEORGE A. WEBSTER, M.D., 28 Greenwich Park, Boston.
Instructor in Otology.

EDWARD E. THORPE, M.D., 711 Boylston St., Boston.
Instructor in Medical Chemistry.

E. CHANNING STOWELL, A.B., M.D., 9 Massachusetts Ave., Boston.
Instructor in Children's Diseases.

EDWARD L. TWOMBLY, A.B., M.D., 406 Massachusetts Ave., Boston.
Instructor in Clinical Medicine.

WARREN F. GAY, A.B., M.D., 416 Marlborough St., Boston.
Instructor in Surgery and Assistant in Surgical Pathology.

JOSEPH C. STEDMAN, M.D., Warren Chambers, Boylston St., Boston.
Instructor in Rectal Diseases.

GARDNER W. ALLEN, A.B., M.D.,
Warren Chambers, Boylston St., Boston.
Instructor in Genito-Urinary Surgery.

GEORGE F. HARDING, M.D.,
Warren Chambers, Boylston St., Boston.
Instructor in Dermatology.

CHARLES F. PAINTER, A.B., M.D., 416 Marlborough St., Boston.
Instructor in Orthopædic Surgery.

GEORGE W. KAAN, M.D., Hotel Oxford, Boston.
Instructor in Clinical Gynæcology.

EUGENE T. McNAMARA, M.D., 773 Tremont St., Boston.
Instructor in Electro-Therapeutics.

THEODORE C. ERB, M.D., 551 Commonwealth Ave., Boston.
Instructor in Obstetrics.

CHARLES D. KNOWLTON, M.D., 574 Warren St., Roxbury.
Instructor in Theory and Practice of Medicine.

ELIZABETH A. RILEY, M.D., Charity Club Hospital.
Instructor in Gynæcology.

WILLIAM J. DALEY, A.B., M.D.,
64 Commonwealth Ave., Boston.
Instructor in Ophthalmology.

EUGENE THAYER, A.B., M.D., 2683 Washington St., Roxbury.
Demonstrator of Anatomy.

JOHN I. FRENCH, M.D., Winchester.
Assistant in Materia Medica and Therapeutics.

RICHARD F. CHASE, M.D., 426 Massachusetts Ave., Boston.
Assistant in Clinical Medicine.

RICHARD F. O'NEIL, A.B., M.D., 416 Marlborough St., Boston.
Demonstrator of Bandaging and Apparatus.

Laboratory Assistants.

ALONZO K. PAINE, Hyannis.
Anatomy.

ISADOR H. CORIAT, Boston.
JOHN H. CHEEVER, Portsmouth, N. H.
Medical Chemistry and Toxicology.

FRANK H. DUNBAR, Mansfield.
OLGA CUSHING, Boston
EDNA H. WEIL, Boston.
Pathology and Bacteriology.

JOHN J. McNAMARA,	Brockton.
FLORENCE GILMAN,	Toledo, O.
GEORGE W. GILLETTE, *General Chemistry.*	Boston.

Bursar.

HERBERT T. BROWN,	Tufts College.

STANDING COMMITTEES OF THE MEDICAL SCHOOL.

EXECUTIVE. — The President, Dean, Secretary, and Drs. Wheatley and Leary.

CATALOGUE. — Drs. Thayer, Williams, and Briggs.

NOMINATIONS. — The Dean, Drs. Channing and Wheatley.

LIBRARY. — Drs. Jack, Cushing, and Cumston.

COURSE OF INSTRUCTION. — The Dean, Secretary, Drs. Leary, Austin, and Arnold.

ADMISSION. — The Dean, Secretary, and Dr. Leary.

DISPENSARY. — The Dean, Drs. Briggs, Thayer, and Arnold.

College Dispensary Staff.

Physicians.

HOWARD S. DEARING, M.D. H. WARREN WHITE, M.D.

Surgeons.

FREDERIC M. BRIGGS, M.D. WARREN F. GAY, M.D.

Assistant Physicians.

E. T. McNAMARA, M.D. ANNIE S. K. PATCH, M.D.
R. F. CHASE, M.D.

Assistant Surgeons.

F. W. PEARL, M.D. R. F. O'NEIL, M.D.

Gynæcologist.

ERNEST W. CUSHING, M.D.

Assistant Gynæcologist.

ELIZABETH A. RILEY, M.D.

The Medical School.

The Tufts College Medical School was established in Boston in 1893. It is co-educational, women being admitted on the same terms as men. The school building is a handsome stone structure situated upon the corners of Rutland Street, Shawmut Avenue, and Newland Street, and has cost about $75,000.

Owing to the unforeseen growth of the school, however, it has proved inadequate and it is expected that a new building will be ready for occupancy by October, 1900. The new Medical School building will be situated upon Huntington Avenue, opposite the proposed Art Museum, will be built especially for the purposes of a Medical School, and will be more than three times as large as the present structure. In the new structure the dispensary accommodations will be further extended and various new features will be incorporated.

CLINICAL ADVANTAGES.

Boston, as the largest city of New England, offers unusual facilities to the student of medicine. The amphitheatres of the Boston City Hospital, the Massachusetts General Hospital, the Massachusetts Charitable Eye and Ear Infirmary, are open to students, and opportunity is thus afforded for witnessing the more extensive surgical operations.

Clinics will be held at the Boston City Hospital, the Massachusetts Eye and Ear Infirmary, and at the Boston Dispensary, which latter, as the largest medical charity in Boston (42,587 cases were treated last year), affords an unsurpassed field for familiarizing the student with the various forms of disease. The school dispensary offers unusual clinical advantages. Members of the medical and surgical staff are also connected with various other institutions, among which may be mentioned the St. Elizabeth Hospital, the Carney Hospital, the Cambridge Hospital, the Woman's Charity Club Hospital, the Free Hospital for Women, the Tremont Dispensary, and so far as possible the material thus afforded will be utilized for the benefit of the students.

Departments of Instruction.

ANATOMY.

Professor Thayer.
Dr. E. Thayer. *Five hours a week first half-year.*

The course in Anatomy comprises, for the Freshman year, lectures, recitations, and demonstrations, illustrated by plates, models, and dissections; and the relation of parts and organs in the various regions of the body are demonstrated, and their importance in the operations is emphasized and explained. In the dissecting-room the student is required to carry on his work with neatness and precision, under the supervision of the Demonstrator, thus acquiring that familiarity with the use of instruments which is essential to the practitioner. The new dissecting-room is fitted with all modern conveniences, and is under the personal supervision of the Professor of Anatomy. The dissections are made under the direction of the Demonstrator of Anatomy or his assistants, who will give all necessary assistance and advice. Abundance of material is furnished students at cost.

HISTOLOGY AND EMBRYOLOGY.

Dr. Bates. *Four hours a week.*

The course in Histology is both didactic and practical, and consists of one hour of lecture and three hours of demonstration each week. The aim of the department is to present the subject comprehensively, beginning with the simple tissues, and by easy gradations presenting the more complicated structures of the body, thus enabling the student to acquire an intimate knowledge of the minute anatomy.

The department is equipped with microscopes and all materials necessary for practical demonstration.

The subject of Embryology is presented from the standpoint of the physician, the aim being to give the student such a knowledge of the subject as to enable him not only to comprehend those elements which are essential for his obstetrical work, but also to classify the tissues of the body according to our best knowledge of their origin in the embryo.

PHYSIOLOGY.

Assistant Professor Mathews. *Twelve hours a week.*

The course in Physiology is given in the second half of the Freshman year. The more general facts and principles of Comparative Physiology are presented in a series of lectures. Human Physiology, in a more limited sense, will be taken up in recitations, of which there will be three two-hour periods a week. Foster's Physiology will be closely followed as a text-book. Two hours a week of laboratory work will be required of each student; there will be, also, a weekly conference, in which free discussion will be allowed of papers on physiological subjects prepared by the students. The physiological laboratory is equipped with the necessary apparatus for students' work.

The object of the course is to give a thorough grounding in the principles of Physiology, as well as a knowledge of the particular functions of the organs of the normal human body.

GENERAL CHEMISTRY.

Professor Pitkin. { *Lectures and Recitations five hours a week.*
Laboratory six hours a week for half-year.

This course consists of Descriptive Chemistry and Qualitative Analysis, with so much of Theoretical Chemistry as is necessary for a proper understanding of the subject.

The classification of the carbon compounds, also, is taken up at considerable length, and special reference made to those which are of interest in the study of medicine. The instruction is by lectures, recitations, and practical work by the students in the laboratory. Much attention is given to Qualitative Analysis, both for the sake of the valuable training which it imparts and the knowledge of Chemistry which is incidentally gained. The importance of this knowledge is evinced by the fact that it is the only non-professional subject which is required in most medical schools. The aim is to impart such information in Chemistry as is necessary to the intelligent physician. At the same time, any who wish to pursue the study further than is required of every graduate may do so by special arrangement.

Certificates of satisfactory completion of Courses 1, 2, and 3 in Chemistry in the Academic Department of Tufts College, or of the same courses in the Summer School, will be accepted in the Medical School in place of General Chemistry.

MATERIA MEDICA AND THERAPEUTICS.

PROFESSOR WHEATLEY. DR. FRENCH.	*Three hours a week.*

Instruction in this department consists of lectures and recitations three hours a week during the year. Samples of drugs will be exhibited; prescription-writing and the metric system will be taught. A reasonable amount of time will be devoted to the late additions to the pharmacopeia.

MEDICAL CHEMISTRY.

PROFESSOR AUSTIN. DR. THORPE.	*Eight hours a week required.* *Twenty hours weekly optional.*

This subject resolves itself naturally into Physiological Chemistry, Clinical Chemistry, and Toxicology.

Each is given its due amount of attention, both in lectures, demonstrations, and practical work in the laboratory. The student acquires first a familiarity with proteins, carbohydrates, and fats, — the bases of all animal tissue. Then he obtains a practical knowledge of the digestions, salivary, stomachic, and pancreatic, associated with the clinical examination of stomach contents.

This is followed by the investigation of blood, urine, and bile, both in their physiological and pathological aspects.

Toxicology then demands the attention of the student, who examines metallic poisons, both in their simple state and mixed with organic matter, together with as much attention to ptomaines as is required by their very close association with alkaloids in medico-legal investigations.

PATHOLOGY.

PROFESSSOR DUDLEY.
ASSISTANT PROFESSOR LEARY. } *Five hours a week.*

Instruction in this department will consist of lectures, recitations, demonstrations, and practical laboratory work.

Demonstration of gross pathological specimens, obtained from operations and autopsies at the Boston City Hospital and other institutions, will take place once a week. This work will include the demonstration and recitation by students on pathological specimens.

For the work in pathological histology, two hours per week are required. Students will mount and make drawings, specimens comprehending all of the subjects of general pathology. Each student will be required to pass a satisfactory examination on the laboratory work.

It will be the aim to make clear the importance of a thorough knowledge of the causes, course, and results of pathological processes.

Microscopes will be loaned to those students who do not possess one, for a small fee.

BACTERIOLOGY.

DR. LEARY. *Four hours a week.*

Instruction in Bacteriology consists of lectures, recitations, and a practical laboratory course. While attention is paid to the technical details of laboratory work, the relation of bacteria to the diseases which they produce, the elaboration of toxines, the subject of immunity, and the important bearings of asepsis, antisepsis, and disinfection are especially emphasized. Particular attention is also paid to the application of all practical bacteriological tests made use of in medicine. The new bacteriological laboratory presents added facilities for the intelligent demonstration of this subject.

The optional course offered in this subject for fourth-year students will consist wholly of laboratory work. Instruction will include the manufacture of nutrient media, bacteriological diagnosis, test work with antiseptics and disinfectants; and every opportunity for advanced work will be furnished to students who desire to carry on original investigation.

HYGIENE.

DR. BARNES. *One hour a week for twelve weeks.*

This course consists of a series of lectures by Dr. Barnes upon personal hygiene, communicable and preventable diseases, occupations, trade nuisances, water-supply, sewerage, houses, school hygiene, hospitals, quarantine, municipal sanitation, climate, etc. It is proposed in the near future to establish a course for graduates in the subject of General Hygiene, for which a special degree will be conferred.

THEORY AND PRACTICE OF MEDICINE.

PROFESSOR WILLIAMS.
DRS. WHITE AND KNOWLTON. *Four hours a week.*

The course prescribed in the department of General Medicine has been carefully planned. As the studies of the second year are intended to prepare the student for the study of the Theory and Practice of Medicine, so is this course intended to prepare for the clinical courses of the fourth year. To this end a systematic series of lectures is offered, including all such general diseases as are not considered in the special courses. Two hours a week by Drs. Williams and White are devoted to these lectures. They comprise a detailed description of each of the diseases under consideration. The diseases are discussed upon the uniform plan of a description of the affection; its synonyms; history; cause; pathological changes; symptoms; complications; diagnosis; prognosis; prevention and treatment. Supplementary to these lectures a quiz-course, also two hours a week, is held by Dr. Knowlton. By such a thorough and systematic study of the diseases he is to meet in the clinical courses of the fourth year the student is prepared to appreciate in the fullest degree the varying phenomena of daily practice which are brought to his attention at the bedside of the patient.

NEUROLOGY.

PROFESSOR WEBBER.

There will be lectures upon diseases of the nervous system, especially such as are most likely to be met in practice. The anatomy and physiology of the nervous system will be considered so far as necessary to understand the relations of the symptoms to organic changes in the nerve centres. The lectures will be illustrated by diagrams and photographs.

MENTAL DISEASES.

PROFESSOR CHANNING. *One hour a week.*

Instruction in this branch will consist of a course of lectures, so arranged as to cover the most important part of the subject. The lectures will be of a practical nature and will be adapted to the requirements of the general practitioner. They will be illustrated so far as possible by the exhibition of cases.

DISEASES OF CHILDREN.

DR. STOWELL. *Two hours a week.*

Instruction in this department consists of clinics, lectures, clinical conferences, and visits to sick children at their homes. The clinical advantages offered to students in this department are very great, and examples of nearly all the affections of infancy and childhood are shown to the students, including such rare diseases as are seldom seen outside the clinics of a large city. A course of didactic and clinical lectures, including the anatomy and hygiene of infancy and childhood, is given by Dr. Stowell, and special clinical instruction in the auscultation and percussion of children and the contagious diseases is given by Dr. Stowell, who receives the members of the class in small sections. Hour examinations are held in this department once every two months.

LEGAL MEDICINE.

One hour a week.

The course in Legal Medicine consists of one lecture each week for twelve weeks, and will include all of the subjects which are usually included under the head of medical jurisprudence, together with a thorough course in the making of medico-legal autopsies, with as many practical demonstrations as possible. The duty of a physician to the Commonwealth, and his rights, both as a medical expert and as an ordinary witness, will be explained.

SURGERY AND CLINICAL SURGERY.

Professor Briggs.
Drs. Gay, Painter, and O'Neil. } *Three hours a week.*

The instruction in this department consists of two lectures weekly on the principles and practice of surgery, one recitation a week from the text-book, a bi-weekly quiz on the preceding lectures, and three one-hour examinations during the year (in addition to the final examination).

Members of the Junior class are expected to attend the operations at the Boston City Hospital every Friday, the clinical lecture at the Boston Dispensary every Thursday, and are invited to attend the clinical conferences of the Senior class after the first of January.

ABDOMINAL SURGERY.

Professor Cushing. *One hour a week.*

Professor Cushing will give one lecture weekly for twenty-one weeks to the students of the Senior class on Abdominal Surgery, including hernia, appendicitis, and the major operations on the female generative organs.

He will also give several demonstrations of the various operations on the cadaver.

GYNÆCOLOGY.

PROFESSOR CUSHING DR. KAAN.	*Three hours a week.*

Instruction is given both by lecture and by clinical teaching. Professor Cushing lectures once each week to the Junior class, and twice weekly sub-divisions of the class receive practical instruction from Instructor Kaan. Once each week a quiz is held by Assistant Riley on the lectures of Dr. Cushing. Arrangements have been made by which students of the Senior class who continue their studies in Clinical Gynæcology and Abdominal Surgery may witness operations in the hospital services of Dr. Cushing.

OBSTETRICS.

PROFESSOR WASHBURN. DR. ERB.	*Three hours a week.*

Instruction in this department consists of lectures, recitations, conferences, and clinical teaching. Lectures are illustrated by plates and the use of the manikin. Each student is required to care for at least two cases, clinical instruction being given with one of these, attending them throughout convalescence and handing in a written report. Some of these reports will be read before the class, and subjected to discussion and criticism by class and instructor.

OTOLOGY.

PROFESSOR F. L. JACK. DR. WEBSTER.	*Twice a week during first half-year.*

Instruction consists of lectures and clinics at the Massachusetts Charitable Eye and Ear Infirmary.

Elective course consists of clinical work at the Massachusetts Charitable Eye and Ear Infirmary.

CLINICAL AND OPERATIVE SURGERY.

PROFESSOR BRIGGS. DRS. GAY, PAINTER, AND O'NEIL.	*Eight hours a week.*

Members of the Senior class attend, in sections, the surgical clinic at the Boston Dispensary eight hours a week from October 1 to April 1.

Students make personal examination and report on successive cases as they enter the consulting-room, thus becoming familiar with the practical methods of making diagnoses and having every opportunity of studying surgery thoroughly from the actual case. Once a week through the year there is a lecture, demonstrated with the cases under discussion, and after January 1 there is a series of clinical conferences. Each student must present at least two papers on cases previously assigned.

Students of this class have numerous opportunities of administering ether, of assisting at operations, and of performing minor operations.

Commencing in November, and continuing until completed, Operative Surgery is demonstrated on the cadaver by the surgical staff, and at the conclusion of these exercises each student studies operative technique by individual work on the cadaver.

GENITO-URINARY DISEASES.

Dr. Allen.

The various diseases of the Genito-Urinary system will be considered and illustrated by cases as far as practicable.

MERCANTILE AND MILITARY MEDICINE.

Drs. Dearing and Stowell. *Once a week for twelve weeks.*

This course is intended to acquaint the student with the duties peculiar to the army and navy surgeon and life insurance examiner. Instruction is given in this course in the methods of physical examination, the preparation of certificates, and other allied subjects.

DISEASES OF THE RECTUM.

Drs. Otis and Stedman.

Instruction in this department will be given by Drs. Otis and Stedman at the Boston Dispensary.

OPHTHALMOLOGY.

PROFESSOR CHANDLER. *Twice a week during first half-year.*

This course will be of the most practical character possible, being designed to give the general practitioner such knowledge of the subject as is most essential in his practice. The lectures will be given at the Massachusetts Charitable Eye and Ear Infirmary once a week through the school year, and will be fully illustrated by clinical cases.

LARYNGOLOGY.

DR. BOARDMAN.

Instruction in Laryngology and Rhinoscopy will be given by Dr. Boardman at the Boston Dispensary, beginning January 1, 1900, and continuing until April 1. The students of the Senior class will be divided into sections, and will visit the clinic of Dr. Boardman on Tuesdays, Wednesdays, Thursdays, and Fridays of each week, where an opportunity is afforded them for studying the diagnosis and treatment of diseases of the throat and nose by actual examination of the patients. The object of the course is to give instruction in cases of this class which are liable to come under the observation of the general practitioner, such as adenoid growth, diphtheritic false membranes, syphilis, tuberculosis, etc. The subject is also illustrated by lectures and diagrams.

DERMATOLOGY.

DR. GEORGE F. HARDING. *Three hours a week for twelve weeks.*

This course is a clinical one in which cases are shown by Dr. Harding in the departments for diseases of the skin in the Boston City Hospital.

CLINICAL MEDICINE.

PROFESSOR HILDRETH.
ASST. PROFESSOR ARNOLD.
DRS. DEARING AND CHASE.
Three hours a week and clinics.

The aim of this course is to give the student a practical acquaintance with disease.

Normal Auscultation and Percussion will be taught in the latter part of the second year.

During the third year the work in Auscultation and Percussion will be extended to the study of abnormal conditions, and clinical opportunities will be afforded the student for gaining experience in the physical examination of patients. Dr. Dearing will give a lecture once a week in Medical Diagnosis.

During the fourth year there will be three regular exercises weekly, besides numerous clinics. One hour a week will be given to didactic lectures. This will be followed by lectures on Military Medicine by Dr. Dearing, on Commercial Medicine by Dr. Stowell, and on Diseases of the Blood by Assistant Professor Arnold. Practical work in the examination of blood will be given in the laboratory by Dr. Strong, under the supervision of Assistant Professor Leary.

The second exercise will be a Clinical Conference one hour a week. At this conference reports of cases written by the fourth-year students will be read and will be discussed and criticised by the board of instruction and by the students. The cases to be reported will be assigned to the students from the various clinics. Third-year students will also be admitted to the Clinical Conferences. The third exercise will be a Clinical Lecture by Assistant Professor Arnold in the Amphitheatre of the Boston City Hospital once a week throughout the school year. Patients from the hospital wards will be shown at this lecture, and the diagnosis and treatment will be discussed. Third-year students will also be admitted to this lecture.

In addition, Clinical Exercises will be held at the following institutions: at the Boston Dispensary by Professor Williams; at the Cambridge Hospital by Professor Hildreth; at the Boston City Hospital by Assistant Professor Arnold; at St. Elizabeth's Hospital by Drs. Dearing and White; at the Boston Dispensary by Dr. Chase; and at the School Dispensary by Drs. Dearing, Chase, and Patch. Students will also be taken on visits in the "Districts" of the Boston Dispensary. Here they will see cases of sickness in their homes and will be enabled to follow the changes in the patient's condition.

They will be required to make a special study of certain of these cases and to make a written report. These reports will furnish the material for the Clinical Conferences.

There will be a three-hour written examination at the end of the fourth year. In addition to this, the mark for the course will be based on a written report of two cases and the satisfactory examination of three cases at the clinics.

ORTHOPEDIC SURGERY.

DR. CHARLES F. PAINTER. *Two hours a week.*

This course consists of lectures and clinical demonstrations under the charge of Dr. Painter, and is given at the Medical School and at the Carney Hospital. The duration of this course will be subsequently announced.

TEXT-BOOKS.

The first book mentioned is preferred as a text-book, the others being recommended as collateral reading.

Anatomy.— Gerrish, Gray, Quain, Morris, Weisse, Holden, Haynes' Dissector.

Physiology.— Foster, Venborn, American Text-Book, Chapman, Schäfer.

General Chemistry.— Witthaus, Storer and Lindsay, A. H. Elliott's Qualitative Analysis.

Histology.— Schäfer.

Medical Chemistry.— Austin and Coriat's Laboratory Manual of Physiological Chemistry, Simmon's Clinical Diagnosis, Kobert's Practical Toxicology.

Collateral Reading.— Hammarsten's Physiological Chemistry, Vaughan and Novy's Ptomaines and Leucomaines, Van Noorden's Pathologie des Stoffwechsels, Lewin's Toxocolgie, Otto's Ausmittelung der Gifte.

Ophthalmology.— Noyes, Swanzy, Nettleship and An American Text-Book of the Diseases of the Eye, Ear, Nose and Throat.

Materia Medica and Therapeutics.— Cushing, Bartholow, Hare, Wood, United States Dispensatory, Gerrish's Prescription Writing.

Pathology.— Greene, Warren, Ziegler.

Bacteriology.— Woodhead, Sternberg.

Obstetrics.— Lusk, Reynolds, Dorland, American Text-Book.

Gynæcology.— Greig, Smith, Byford, Dudley, Kelly.

Surgery.— Roswell Park's Surgery, International Text-Book, American Text-Book, Dennis, Stimson on Fractures and Dislocations, Zuckerkandyl's Operative Surgery.

Practice of Medicine.— Osler, Pepper, Wood and Fitz, Ander's Practice of Medicine.

Clinical Medicine.— Osler's Practice of Medicine, Wood and Fitz Practice, DaCosta's Medical Diagnosis, Tyson's Physical Diagnosis.

Neurology.— Gower, Dana, Gray.

Mental Diseases.— Cloustin, Spitzka.

Pediatrics.— Holt's Diseases of Infancy and Childhood, Rotch's Pediatrics.

Laryngology.— Bosworth, Hall, Coakley, and Bishop, on Diseases of the Nose and Throat, Grünwald's Atlas and Abstract of the Diseases of the Larynx.

Diseases of the Rectum.— Kelsey's Surgery of the Rectum and Pelvis, Ball's The Rectum and Anus Orthopedics, Bradford and Lovett's Orthopedic Surgery, Tubby's Deformities.

Otology.— Politzer and Bennett's System of Diseases of the Ear, Throat, and Nose.

Ophthalmology.— De Schweinitz, Nettleship, Noyes.

Medical Dictionary.— Dunglison.

OUTLINE OF THE COURSE.

Freshman Year.

Descriptive Anatomy. Lectures, dissections, and demonstrations.

Physiology. Lectures, demonstrations, and experimental work in the laboratory.

Histology. Lectures and required laboratory work.

General Chemistry. Lectures and required laboratory work.

Final examinations upon these subjects at the close of the first year.

Second Year.

Pathology. Lectures, demonstrations, and required laboratory work.

Bacteriology. Lectures and required laboratory work.

Materia Medica and Therapeutics. Lectures and recitations.

Medical Chemistry and Toxicology. Lectures and required laboratory work.

Final examinations upon these subjects at the close of the second year.

Bandaging and Apparatus.

Normal Auscultation and Percussion.

Third Year.

Theory and Practice of Medicine. Lectures and recitations.

Surgery. Lectures and recitations.

Obstetrics, including attendance upon two cases of labor. Lectures and recitations.

Abdominal Surgery and Gynæcology. Lectures and recitations.

Pediatrics.

Hygiene.

Final examinations upon these subjects at the close of the third year. Third-year students who have creditably passed all of their previous examinations will be allowed to take some of the fourth-year studies, subject to the approval of the Faculty.

Fourth Year.

Clinical Medicine, Clinical Surgery, Clinical Gynæcology, Ophthalmology, Otology, Neurology, Dermatology, Laryngology, Diseases of the Rectum, Genito-Urinary Diseases, Orthopedic Surgery, Mental Diseases, Electro-Therapeutics, and Legal Medicine.

The final examinations of the fourth year will consist of three hour examinations upon Clinical Medicine, Clinical Surgery, and two of the following subjects, which shall be elected by the student, and one hour examination on each of the others: —

Ophthalmology, Otology, Neurology, Dermatology, Laryngology, Diseases of the Rectum, Genito-Urinary Diseases, Orthopedic Surgery, Mental Diseases, Electro-Therapeutics, and Legal Medicine.

EXAMINATIONS.

There are two examinations held each year in the college building. They are in writing, and are held at the opening of the regular course of lectures in the fall and at the close of the course in the spring.

The fall examinations are for

(*a*) Students commencing the study of medicine.
(*b*) Students applying for advanced standing.
(*c*) Students who failed in the spring.

The spring examinations are for promotion and graduation.

All students who intend taking any of the examinations must register their names with the Secretary on or before a date to be announced upon the bulletin.

Students who have failed twice in their examination upon a subject will not be admitted to a third examination without the payment of an extra examination fee of ten dollars.

Students are eligible for their examinations as follows: those of the Freshman year at the close of first year's course; those of the second year at the close of the second year's course, provided they have passed a majority of the Freshman examinations; those of the third year at the close of the third year's course, provided they have passed all of the Freshman and a majority of the second-year examinations; those of the Senior year at the close of the fourth year's course, provided they have passed all of the Freshman and second-year examinations and a majority of those of the third year.

Requirements.

FOR ADMISSION.

Every applicant for admission must furnish a certificate of good moral character. Forms for this certificate are furnished by the Secretary.

To the Freshman Class.

Students are admitted to the Freshman class without examination upon presentation of the official certificates of reputable literary and scientific colleges, academies, high schools, normal schools, and upon the medical students' certificate issued by any State examining board covering the work required in the following entrance examination. All other students must pass a written examination as follows: —

(*a*) English. A composition of two hundred words upon some subject of general interest; the same to be criticised in relation to thought construction, punctuation, spelling, and handwriting.

(*b*) Arithmetic. Such questions as will show a thorough knowledge of common and decimal fractions, compound numbers, ratio, and proportion.

(*c*) Algebra. Such questions as will bring out the students' knowledge of the fundamental operations, factoring, and single quadratic equations.

(*d*) Physics. Such questions as will discover the student's understanding of the elements of mechanics, hydrostatics, hydraulics, optics, and acoustics.

(*e*) Latin. An examination upon such elementary work as is usually included in one year of study; as, for example, the first fifteen chapters of Cæsar's Commentaries and the translation into Latin of easy English sentences involving the same vocabulary. Students who fail in one or more of these subjects may be admitted, subject to condition; but no student will be allowed to begin his second year whose entrance conditions remain unsatisfied.

The entrance examinations for 1900 will be held at the Medical School Building on Tuesday, Oct. 2, at 10 A.M. Students holding certificates or diplomas are requested to present the same at this time.

To the Second-Year Class.

Graduates of Tufts College who have taken the medical preparatory course, which includes one year of Anatomy and Physiology at the Medical School, and graduates of other colleges or scientific schools in which an equivalent course is given may complete the work required for the degree of M.D. in three years, such equivalent course being in part a year devoted to medical study.

Graduates of literary or scientific colleges who have not taken the medical preparatory course may, under certain circumstances, be admitted to the second-year class, but will have to pass the examinations of the first year before they can become candidates for the degree.

Graduates and students of homœopathic or eclectic schools of medicine and graduates of reputable colleges of dentistry, pharmacy, and veterinary medicine are admitted to the second year, provided they pass the examination of the first year and have met the requirements of the Association of American Medical Colleges.

Students of this school who have passed a majority of the Freshman examinations and all entrance conditions are admitted to the second-year class.

To the Third-Year Class.

Students who have passed all the Freshman examinations and a majority of the second-year examinations may be admitted to the third-year class.

To the Senior Class.

Students who have passed all the examinations of the Freshman and second year and a majority of the subjects of the third year, and graduates of other regular medical schools, may be admitted to the Senior class.

FOR THE DEGREE OF M.D.

Candidates for the degree of Doctor of Medicine in the year 1900 and afterwards must have fulfilled the following requirements: —

1. They must furnish certificates that they are twenty-one years of age and of good moral character.
2. They must have attended four full courses of medical lectures at some accredited medical college, except as above noted, the last of which shall have been at this school, and no two courses in the same twelve months.
3. They must have passed all the required examinations.
4. They must have attended two cases of obstetrics.

5. They must have satisfactorily dissected one-half of the body under the direction of a Demonstrator of Anatomy.

6. They must have paid all fees before the final examinations.

The final marks in all subjects are derived from work in the recitations, laboratory, dissecting-room, and in written examinations.

The Faculty reserve the right to change these requirements from time to time without further notice.

EXPENSES.

Freshman Year.

Matriculation fee	$5.00
Demonstrator fee	5.00
General chemistry laboratory fee	5.00
Histology laboratory fee	5.00
General lecture ticket	100.00

Second Year.

Matriculation fee	$5.00
Medical chemistry laboratory fee	5.00
Pathology and bacteriology laboratory fee	5.00
General lecture ticket	100.00

Third Year.

Matriculation fee	$5.00
General lecture ticket	100.00

Senior Year.

Matriculation fee	$5.00
General lecture ticket	50.00
Graduation fee	30.00
Ticket admitting to the four years' lectures (when paid in advance)	300.00
Instruction in a single branch	$30.00
Graduates of other schools	50.00
Dissecting material	At cost.

The matriculation fee, demonstrator fee, laboratory fees, and one-half of the general lecture ticket must be paid in advance at the beginning of the year, on or before November 1; the second fifty dollars on the lecture ticket is due, and must be paid, on or before February 1.

No student will be allowed to attend any course of lectures without the certificate of the Bursar of the College.

The graduation fee is payable on or before the first day of May, and no student will receive a diploma from the College until the Bursar certifies that all fees or charges of any kind are settled.

The Bursar of the College will be at the Medical School for the purpose of collecting fees, a notice of the days and hours being previously posted on the bulletin-board.

General Information.

LIBRARIES.

The students have free access to the library of the new school, to the Library of Tufts College, and, under certain restrictions, to the Boston Medical Library and to the Boston Public Library, which latter contains a collection of over 15,000 books upon medical subjects.

SESSIONS OF THE SCHOOL.

The annual course of lectures begins on the first Wednesday in October of each year, and continues until the last Wednesday in May.

The next annual course of lectures will commence Wednesday, October 3, 1900.

VACATIONS.

There are no exercises at the school during the weeks of Christmas and Easter, nor upon Patriots' Day, Memorial Day, and three days at Thanksgiving.

STANDING AND CERTIFICATES.

Graduates of other regular medical schools in good standing may receive the degree of this school after attending one course of lectures and passing the examinations of the Senior year. It is understood that attendance upon a course of lectures requires actual presence at a majority of the exercises of the session.

Students who do not wish a degree will be received for any portion of the course. Any student may obtain a certificate of work done during his period of connection with the school. The use of tobacco in the lecture and recitation rooms will not be permitted.

The expenses of living in Boston vary according to the habits and desires of students, and need not exceed those in small cities and villages. Good board, including room, fire and light, can be obtained near the school at from $4 to $7 per week. Near the school building are several excellent boarding-places charging moderate prices. Students will not be allowed to occupy rooms in the city that are not approved by the Faculty.

Requests for the Annual Announcement and all other communications relating to the business of the school should be addressed to Charles P. Thayer, M.D., Secretary, Tufts College Medical School, Boston, Mass.

THE DENTAL SCHOOL.

(FORMERLY THE BOSTON DENTAL COLLEGE.)

Faculty of the Dental School.

ELMER H. CAPEN, D.D., LL.D., President.

HAROLD WILLIAMS, A.B., M.D., 528 Beacon Street.
Dean, *and Professor of the Principles and Practice of Medicine.*

CHARLES P. THAYER, A.M., M.D., 74 Boylston St., Boston.
Secretary, *and Professor of Anatomy.*

EDWARD W. BRANIGAN, D.D.S., 2 Commonwealth Ave., Boston.
Professor of Clinical Dentistry.

FRANK G. WHEATLEY, A.M., M.D., North Abington.
Professor of Materia Medica and Therapeutics.

GEORGE A. BATES, D.D.S., Auburndale.
Professor of Dental Histology.

JOHN C. MUNRO, A.B., M.D., 173 Beacon St., Boston.
Professor of Surgery.

FREDERICK M. HEMENWAY, D.D.S., Hotel Pelham, Boston.
Professor of Mechanical Dentistry.

TIMOTHY LEARY, M.D., Tufts College Medical School.
Professor of Pathology and Bacteriology.

JOSEPH KING KNIGHT, D.D.S., Hyde Park.
Professor of Dental Art and Mechanism.

ALBERT PRESCOTT MATHEWS, S.B., Ph.D.,
Professor of Physiology. Tufts College Medical School.

OTHER INSTRUCTORS.

WALTER I. BRIGHAM, D.D.S., South Framingham.
Lecturer on Operative Dentistry.

BYRON H. STROUT, D.D.S., Taunton.
Lecturer on Operative Technics and Instructor in Anæsthesia.

GEORGE C. AINSWORTH, D.D.S., 220 Clarendon St., Boston.
Instructor in Orthodontia.

CHARLES F. PAINTER, A.B., M.D., 372 Marlboro St., Boston.
Instructor in Surgical Pathology.

WILLIAM P. HOUSTON, D.D.S., 419 Boylston St., Boston.
JOHN W. FORBES, D.D.S., 419 Boylston St., Boston.
EDGAR O. KINSMAN, D.D.S., 15 Brattle Sq., Cambridge.
JAMES R. PIPER, D.D.S., 115 Newbury St., Boston.
KNUT J. LUTROPP, D.D.S., 282 Columbus Ave., Boston.
HENRY H. PIPER, D.D.S., Winter Hill, Somerville.
WILLIAM RICE, D.D.S., 153 Newbury St., Boston.
BURLEIGH C. GILBERT, D.D.S., Stoneham.
ERVIN A. JOHNSON, D.D.S., 419 Boylston St., Boston.
Instructors in Clinical Dentistry.

FRED C. MERRILL, D.D.S., Wollaston.
J. ROSS HARDY, D.D.S., 124 Huntington Ave., Boston.
EDWIN A. QUINN, D.D.S., 156 Lamartine St., Jamaica Plain.
Instructors in Mechanical Dentistry.

EUGENE THAYER, M.D., 2683 Washington St., Roxbury.
Demonstrator of Anatomy.

JOHN I. FRENCH, M.D., Winchester.
Instructor in Materia Medica and Therapeutics.

LABORATORY ASSISTANTS.

ALONZO K. PAINE,
Anatomy.

JOHN J. McNAMARA, Brockton.
FLORENCE GILMAN, Toledo, O.
GEORGE W. GILLETTE, Boston.
Chemistry.

FRANK H. DUNBAR, Mansfield.
A. OLGA CUSHING, Boston.
EDNA H. WEIL, Boston.
Pathology and Bacteriologv.

CARLENA J. WALKER,
Clerk in Infirmary.

SARAH E. MILLER,
Clerk to Mechanical Department.

FRANCES WILDER,
Matron in Operating-Room.

HERBERT T. BROWN, Tufts College.
Bursar.

The Dental School.

The Tufts College Dental School, formerly The Boston Dental College, became an incorporate part of Tufts College in 1899, under a special act of legislature. It was incorporated under its former name in 1868, and is a firmly established dental school of thirty years' standing, with a large and distinguished body of alumni. Its transfer to Tufts College was in consequence of the new anatomical laws of the State, and because it was felt by its former Board of Trustees that the advance in dental education rendered it desirable that the more purely scientific portion of its curriculum should be pursued in connection with a medical school.

The course of instruction in this institution embraces three academic years of nine months each. The studies of the first year, except for practical work in the Infirmary, are carried on in connection with the Medical School.

Instruction is given by means of lectures, demonstrations, laboratory work, and recitations in Anatomy, Physiology, Histology, Chemistry, Materia Medica, Pathology, Therapeutics, Bacteriology, Principles of Surgery, Oral Surgery, and in Operative, Clinical, and Mechanical Dentistry, and Dental Technics.

The Infirmary, under the individual direction of the Professor of Clinical Dentistry, assisted by a corps of demonstrators, is open daily through the year, except during the months of July and August. In the abundance and variety of its clinical material, it furnishes ample opportunity for the personal study of Oral Surgery as well as of Dentistry in all its branches.

The Laboratory of the Mechanical Department is provided with abundant facilities for every variety of dental work. Each student is required before graduation to present satisfactory specimens of the different forms of mechanical work made at the College under the supervision of the Professor of Dental Art and Mechanism.

The aim of this institution has been from the beginning to give its students such a course of instruction as shall enable them to graduate as well-trained, practical dentists. It is a fact which needs no emphasis, that no amount of didactic instruction or clinical teaching will take the place of personal practice under competent supervision. Attention, therefore, is called to the fact that the matriculate, from the moment he enters the school, is under the supervision of a professor and his demonstrators, who are in daily attendance in the Infirmary. The intimate daily relationship thus established between professor and pupil continues throughout the course and produces its legitimate result. But while the practical side of the training is thus emphasized, an effort is made to educate the student in the fundamental branches of medical and dental science, and to awaken in him a taste for study and research, and for the cultivation of those higher branches which render dentistry a profession instead of an art.

The Library of the College contains many medical and dental books and periodicals, and is being added to constantly, the aim being to add the new and important books in the various departments as they are issued. The Library is open for reference and books are loaned to students. All the students are earnestly requested to make use of this privilege. Students also have access to the Boston Public Library, which contains one of the largest collections of scientific works in the United States.

Further opportunities for instruction are furnished by the valuable clinics and operations at the large hospitals of the city, which can be visited by the matriculates of this institution. Numerous operations upon the face and oral cavity are performed before students on public operating-days, and all connected with the school are urged to avail themselves of the facilities thus offered. The Boston City Hospital is but ten minutes' walk from the College, while the Massachusetts General Hospital can be reached by the Belt Line cars.

The Infirmary opens on the Monday of the week previous to the first Wednesday in October, and closes the second Wednesday in June.

The lectures commence the first Wednesday in October, and continue until the close of the session.

The school is a member of the American Association of Dental Faculties, and complies with its rules and regulations as well as those of the American Association of Dental Examiners.

Requirements.

FOR ADMISSION.

Candidates for admission to this school must pass a written entrance examination in the following studies:—

English.— Grammar, Composition, Spelling, Punctuation, Grammatical Construction.

Geography.— Descriptive, Physical.

History.— United States, General.

Mathematics.— Advanced Arithmetic, Algebra — through Quadratics, Plane Geometry.

Latin.— Rules of Grammar, Declensions, Conjugations, Construction, Translation of Easy Prose.

Physics.— Elementary.

The candidates are required to make a general average of at least seventy-five per cent. In lieu of this examination, a certificate of graduation from a high school, college, or university, or an entrance certificate to the Freshman class of the academical department of a college or university, may be accepted, — the institutions, however, granting these certificates, to be accredited as standard by the communities within which they are located. In admitting students who have taken a partial course in other colleges to advanced standing, — Junior or Senior classes, — colleges to be recommended shall require evidence from such students that their first matriculation was in accordance with the requirements under this rule governing the entrance examination.

Special.— All applicants for admission will be examined as to their adaptability to the peculiar work and training necessary for the successful pursuit of the dental profession.

Examinations for admission are conducted in writing, and are held at the Medical College building the second Monday in June and the first Tuesday in October, beginning at 10 A.M.

In certain cases candidates living at a distance may take the entrance examination at some place nearer home. For further information on this point applications should be made to the Secretary.

It is essential that all those intending to take the examination in Boston should present themselves on the dates specified in the calendar.

Students who began their professional studies elsewhere may be admitted to advanced standing on furnishing a certificate of having passed satisfactorily the examinations in the studies pursued by the class to which they seek admission, and furnishing satisfactory evidence of the time spent in study at some reputable dental or medical school.

ATTENDANCE.

The College year begins the first Wednesday in October, and ends the third Wednesday in June. A student cannot be received in full and regular standing who presents himself later than ten days after the commencement of the term. In order, therefore, that the time of study shall count for a full year, students must register with the Secretary within ten days after the first Wednesday in October.

DIVISION OF STUDIES.

Freshman Year.— Anatomy, Physiology, Chemistry, Histology, with final examinations at close of year; Operative, Clinical, and Mechanical Dentistry, with examinations for progress at close of session.

Junior Year.— Materia Medica and Therapeutics, Pathology and Bacteriology, Surgical Pathology, with final examinations at close of session; Orthodontia; Operative, Clinical, and Mechanical Dentistry, with examinations for progress at close of session.

Senior Year.— Practice of Dental Medicine, Anæsthesia and Oral Surgery, Orthodontia; Operative, Clinical, and Mechanical Dentistry, with final examinations in all the studies of the year at the close of the session.

EXAMINATIONS.

There are two examinations held each year in the College building. They are in writing, and are held at the opening of the regular course of lectures in the fall, and at the close of the course in the spring.

The fall examinations are for

(*a*) Students commencing the study of dentistry.
(*b*) Students applying for advanced standing.
(*c*) Students who failed in the spring.

The spring examinations are for promotion and graduation.

All students who intend taking any of the examinations must register their names with the Secretary on or before a date to be announced upon the bulletin.

Students who have failed twice in their examination upon a subject will not be admitted to a third examination without the payment of an extra examination fee of ten dollars.

Students are eligible for their examinations as follows: those of the Freshman year at the close of the first year's course; those of the Junior year at the close of the second year's course, provided they have passed a majority of the Freshman examinations; those of the Senior year at the close of the third year's course, provided they have passed all of the Freshman and a majority of the Junior examinations.

FOR THE DEGREE.

The degree of Doctor of Dental Medicine may be conferred upon any candidate of adult age who has attended three full courses of study at some reputable dental or medical college, two of which shall have been at a dental college, the last one at this school. He must undergo an examination to the satisfaction of the Faculty, and must satisfy the Professors of

Operative and of Mechanical Dentistry of his ability to meet satisfactorily the requirements of his profession. He is also required to deposit with the Secretary of the Faculty a satisfactory specimen of mechanical work, prepared during the course under the supervision of the Professor of Dental Art and Mechanism.

INSTRUMENTS.

With the exception of the extracting instruments, lathes, and vulcanizers, each student is required to furnish his own instruments, tools, and appliances, for both laboratory and operating-room, and is also required to furnish all metals used in laboratory work.

Course of Instruction.

DENTAL SCIENCE AND OPERATIVE DENTISTRY.

The instruction in this chair is both didactic and practical. The professor and other instructors endeavor to demonstrate all approved methods of performing operations upon the teeth and surrounding tissues.

The origin and treatment of decay, the materials for filling teeth, and the most improved instruments and appliances used in operating upon the teeth are discussed. Frequent clinics are held at the Infirmary, and every available means is employed to make the students practically acquainted with this important branch of dental science.

CLINICAL DENTISTRY.

The method of instruction from this chair is by clinical lectures to the students of each class, accompanied by practical demonstrations of the various operations on the teeth and neighboring tissues.

Ample opportunity for work in practical Operative Dentistry is furnished in this department, and the student, by actual practice, receives training in the various dental operations and in the diagnosis and treatment of diseased conditions of the mouth and teeth.

DENTAL ART AND MECHANISM.

The course of instruction in this chair embraces the history, nature, and properties of the various materials used in making artificial dentures, with a special course to the Freshman class in making and tempering instruments. Particular attention is given to the practical manipulation of vulcanite, celluloid, aluminum, and cast metal for dentures; to gold plate work and the application of continuous gum to platina; to the manufacture of porcelain teeth in single and block forms, and to crown and bridge-work. The natural form, color, and arrangement of the teeth, together with the entire range of procedure (from taking the impression to the completion of the case and its proper adjustment in the mouth), are thoroughly discussed.

ANATOMY.

As a knowledge of the human body is considered essential to the well-equipped dentist, the course in this subject will consist of lectures, recitations, and practical work in the dissecting-room.

The lectures are illustrated by plates, manikins, and dissections before the class. Each student is required to dissect under the supervision of the Demonstrator of Anatomy, and will be required to pass an examination upon the part dissected.

The course is identical with that given the medical students, and is taken with them.

An ample supply of anatomical material is always obtainable.

PHYSIOLOGY.

Assistant Professor Mathews.

The course in Physiology for the dental students will be identical with that given the medical students, and will thus serve as a foundation for the later work in medical dentistry. The course will consist of lectures, recitations, conferences, and laboratory work. The lectures will cover the more general facts and principles of Comparative Physiology. The recitations will be based upon Foster's Physiology, which will be closely followed. Chief stress will be laid upon these recitations, in which human physiology proper will be taken up. Two hours a week of laboratory work will be required, and once a week a conference of the class will be held, in which papers prepared by the students on physiological subjects will be presented and discussed.

The present development of the medical side of dentistry necessitates a thorough preparation of the student in Physiology. This preparation, it is believed, will be furnished by the course outlined.

CHEMISTRY.

This course is divided into two parts. During the first half of the Freshman year it is the same as is given to students of the Medical School. There are five lectures and recitations each week, with six hours of work in the laboratory, including Descriptive Chemistry, Qualitative Analysis, and so much of Theoretical Chemistry as is necessary for a proper understanding of the subject. The classification of the carbon compounds, also, is taken up at considerable length, and special reference made to those which are of interest in dentistry or medicine.

During the second half of the Freshman year this preliminary chemical training is followed by lectures, recitations, and laboratory work in "Dental Chemistry." The metals and their alloys and salts as used in dentistry, the bones and teeth, the saliva, and the chemistry of the mouth are carefully studied, and such information acquired as is necessary for the intelligent practice of the profession.

HISTOLOGY AND MICROSCOPY.

The work in this department covers the Freshman year.

This course covers the elementary tissues treated comprehensively, beginning with the origin of the tissues in the embryo. Particular attention is given to the study of the minute anatomy of the tooth.

The development of the teeth will receive especial attention, and it will be the aim of this department to present the newest ideas upon this most important branch of dental science. Too much stress can hardly be laid upon this part of the student's training, as an adequate knowledge of the origin and history of the dental germ lays a foundation for the dentist which cannot be overestimated.

PATHOLOGY AND BACTERIOLOGY.

The course in Pathology will consist of lectures, recitations, and demonstrations. The subject of General Pathology will be thoroughly covered, and the Special Pathology of the mouth, respiratory, and intestinal tracts will be given special attention. The work will include microscopical as well as gross demonstrations.

ORTHODONTIA.

The most important part of this course will consist of the treatment of practical cases. The work will be done by individual students, under the direction of the instructor. Every effort will be made to familiarize the student with the best and latest methods.

DENTAL TECHNICS.

A well-lighted and convenient room has recently been fitted for the use of the class in Operative Technics.

Instruction will be given in this department, both by lectures from the instructor in charge, illustrated by models and lantern slides, and by practical work by the students. The practical work will include the study of the forms of teeth, with carvings in ivory, study of position and form of pulp chambers and canals, with dissection of teeth, proper methods of opening and filling pulp canals, with operations on natural teeth; also proper methods of forming cavities for filling, and the manipulation of filling materials.

ANÆSTHESIA AND EXTRACTION.

The extracting-room, a well-lighted apartment on the third floor, is supplied with all needful instruments and appliances for extracting teeth and the performance of the simpler operations in surgery. Ample rooms are adjacent for waiting and for the care of patients after anæsthesia. Administrations of nitrous oxide gas and ether are made daily. The room is at all times under the personal supervision of the Instructor in Anæsthesia.

MATERIA MEDICA AND THERAPEUTICS.

Instruction in this department is identical with that given to students of medicine. It consists of lectures and recitations three hours a week during the second year. Samples of drugs are exhibited. Prescription-writing and the metric system are taught. A reasonable amount of time is devoted to the late additions to the Pharmacopœia.

ORAL SURGERY.

It is the intention in this department to afford instruction not only in the local affections which are met with in the tissues about the oral cavity, but also to acquaint the student with such subjects in general surgery as have even remote connection with Oral and Dental Surgery. The lectures are supplemented by frequent clinics, both at the Infirmary and at the Hospital. The use of anæsthetics is exemplified in the weekly clinics for extraction and in the hospital service of the Professor of Surgery.

SURGICAL PATHOLOGY.

Instruction in this subject is given by means of a series of didactic lectures, with occasional recitations and clinics. As this branch is expected to prepare the students for the course in Oral Surgery, particular attention is paid to the general pathological conditions which are present in surgical diseases, together with the normal processes of repair, which take place both in the soft parts and in the osseous structures.

THEORY AND PRACTICE OF MEDICINE.

This course consists of a series of lectures given to the dental students by members of the Faculty and Board of Instruction of the Medical School. It is intended to include such subjects as General Infectious and Contagious Diseases; Syphilis; Stomatitis and Tonsillitis; Diseases of the Heart, Kidneys, and Skin; Neuralgia and Neurasthenia; Disorders of the Alimentary Tract; Pregnancy; Tuberculosis; Lectures upon Legal Medicine, and others. It is believed that a course of this description will be of the utmost practical value to dental students, as it will make them acquainted with the nature of a large class of diseases and conditions which they are liable to meet with in the practice of dentistry. It is expected that Drs. Williams, Webber, Austin, Arnold, White, Stowell, and Harding, of the Medical School, will contribute to this series of lectures.

INFIRMARY AND LABORATORY.

In the Clinical and Mechanical Departments instruction is given daily from 9.30 A.M. to 1 P.M.

Materials used in the Clinical Department are furnished by the College.

HOSPITALS.

Students have admission to the Massachusetts General, the City and United States Marine Hospitals, and the Boston Dispensary, where opportunities are offered for observing surgical operations.

THE COLLEGE BUILDINGS.

The present College building is situated at the junction of Tremont, Clarendon, and Montgomery Streets, with a main entrance on Tremont Street. It is exceptionally well located, being easy of access from all parts of the city by the various lines of street-cars. Tremont-Street cars pass the door, while the Washington Street, Shawmut Avenue, Dartmouth Street, Dover Street, and Cambridge lines all pass within two blocks. The Medical School building is situated on the corner of Rutland Street, Shawmut Avenue, and Newland Street. It is within ten minutes' walk of the Dental School.

In close proximity to the College building are the Boston Public Library, Young Men's Christian Association, Rooms of the Boston Society of Natural History, Art Museum, Boston City Hospital, and other places of interest and instruction to students.

First Floor — Infirmary. The first floor is devoted to the Clinical Department. The Infirmary is a very large room, and is especially well situated for operative work, full light being received on three sides,— north, east, and south. The operating-chairs, being arranged on these three sides, are well lighted. A private operating-room of the Professor of Clinical Dentistry, adjoining, is utilized for special operations, consultations, anæsthesia, etc. A supply-room, with an assistant in constant attendance, is conveniently located, from which all supplies are obtained. The room is provided with seats for the accommodation of the patients who daily visit the Infirmary for treatment.

Second Floor — Mechanical Laboratory. On the second floor is the Laboratory of the Mechanical Department. It is provided with work benches, drawers, and lockers for the accommodation of two hundred students. The Laboratory contains vulcanizers, furnaces for continuous gum work, mounted blow-pipes, lathes, apparatus for making alloys and solder, for refining gold, and, in fact, all the modern appliances for the practice of mechanical dentistry.

Third Floor — Lecture-Room. The third floor is occupied by the library, lecture, and extracting rooms. The lecture-rooms accommodate classes of from seventy-five to one hundred and fifty students.

FEES AND EXPENSES.

Matriculation, yearly	$5.00
Freshman laboratory ticket	5.00
Junior laboratory ticket	5.00
Demonstrator of Anatomy ticket (once only) . . .	5.00
General lecture ticket	100.00
Postgraduate fee	50.00
Graduation fee	30.00
Dissecting-material	At cost.

Payment in full must be made at the commencement of the term. The College Bursar will be in regular attendance at the school for the purpose of collecting fees, a notice of the days and hours having been previously posted upon the bulletin.

The graduation fee is payable on or before the first day of May, and no degree will be conferred until the Bursar certifies that all fees have been settled.

The student's general expenses can be reduced, in accordance with his means, to the standard which prevails in other cities. The clerk at the Infirmary keeps a list of boarding-houses in the vicinity of the College building, varying in rate of charge from four dollars a week upwards.

TEXT-BOOKS.

The first book mentioned is preferred as a text-book, the others being recommended as collateral reading.

Anatomy.— Gerrish, Gray, Weisse, Quain, Morris, Black's Dental Anatomy.

Physiology.— Foster, Yeo, McKendrick, Eames' Practice of Dental Medicine.

Pathology.— American System of Dentistry, Barrett's Oral Pathology and Practice, Miller's Micro-organisms of the Human Mouth, Burchard's Dental Pathology, Eames' Practice of Dental Medicine.

Therapeutics.— Cushing, Bartholow, Wood, Hare, United States Dispensatory, Gerrish's Prescription Writing.

Practice of Surgery.— Senn's Principles of Surgery, Park's System, Marshall's Injuries and Surgical Diseases of the Jaws, Warren's Surgical Pathology.

Dental Science and Operative Dentistry.— Kirk's Operative Dentistry, Garretson's Oral Surgery, Black's Dental Anatomy, Week's Operative Technics, American System of Dentistry, Harris's Practice of Dental Surgery, Taft's Operative Dentistry.

Dental Histology and Microscopy.— Schäfer's Essentials in Histology, Stohr's Histology, Tome's Dental Anatomy (latest edition).

Dental Art and Mechanism.— Essig's American Text-Book of Prosthetic Dentistry, Richardson's Mechanical Dentistry, Evan's Crown and Bridge Work, Gilbert's Vulcanite and Celluloid, Haskell's Student's Handbook.

Chemistry.— Witthaus, Storer, and Lindsay, A. H. Elliott's Qualitative Analysis, Mitchell's Dental Chemistry.

Materia Medica.— Shoemaker (4th edition), Bruce, White, Bartholow (8th edition).

Prescription Writing.— Gerrish.

Bacteriology.— Abbott, Woodhead, Sternberg.

Medical Dictionary.— Dunglison.

General Information.

SESSIONS.

There is but one yearly session of the school, nor are there any exercises at the school during the evening.

The annual course of lectures for 1900–1901 will commence on Wednesday, Oct. 3, 1900, at 3 P.M., at the Medical College building, corner of Shawmut Avenue and Rutland Street.

VACATIONS.

There are no exercises at the school during the weeks of Christmas and Easter, nor upon Patriots' Day, Memorial Day, and three days at Thanksgiving.

Students intending joining the school are requested to fill out the accompanying blank and forward it to the Secretary, and to bring their certificates of their previous education with them.

Requests for the Annual Announcement and all other communications relating to the business of the school should be addressed to CHARLES P. THAYER, A.M., M.D., Secretary, 74 Boylston Street, Boston, Mass.

THE BROMFIELD-PEARSON SCHOOL.

The Bromfield-Pearson School.

BOARD OF INSTRUCTION.

ELMER H. CAPEN, D.D., PRESIDENT.

GARDNER C. ANTHONY, A.M.,
DEAN, *and Professor of Technical Drawing.*

JOHN P. CLARK,
Instructor in Mathematics.

SAMUEL C. EARLE, A.M.,
Instructor in French and English.

CHARLES H. CHASE, S.B.,
Superintendent of Shops.

STUDENTS.

All Engineering Students of Tufts College attending courses in shopwork, and the following pursuing preparatory courses: —

Brown, Walter C.	*Castine, Me.*
Harwood, William A.	*Warren, Mass.*
Huested, Alfred P.	*Albany, N. Y.*
Trott, Edgar P.	*Medford, Mass.*

The Bromfield-Pearson School.

This department of Tufts College provides special courses of technical instruction for those who are qualified by previous education and maturity of mind to prepare for any of the Engineering Courses of the College in one year, or to pursue with equal advantage the special two-years' course of the school.

The first year may be taken as preparatory, either to the Engineering Departments of the College, or to the technical course of the school.

The course for the second year is arranged to meet the wants of those who are unable to pursue their studies for a longer period, but require the essentials of an engineering education presented in a concise and practical manner, to include Elementary Mathematics, Mechanics, and Technical Drafting.

ADVANTAGES TO BE DERIVED FROM THE COURSE.

Students who pursue the preparatory course, and complete the work satisfactorily, will be admitted to the College on certificate.

Save in the elementary instruction in Mathematics and English, the courses pursued are, in most respects, identical with those of the College.

Students who are partially prepared to enter the College may pursue advanced work in anticipation of their engineering studies, and thus shorten their college course.

Students who may pursue the two-years' course, and later decide to enter the College, will receive full credit, by the College, for all work satisfactorily performed which may be equivalent to that required in the Engineering Department.

The association with college work and college men places the student in better position to pursue his advanced studies.

The Gymnasium, Library, and Lecture-courses of the College are open to students of the school.

The mechanical equipment of the school is such as to afford exceptional opportunities for pursuing the practical courses in Carpentry, Moulding, Pattern Work, Forging, and Machine Work.

THE BUILDING.

The Bromfield-Pearson Building is a three-story building, 100 by 50 feet, comprising drafting and recitation rooms, offices, and shops, for conducting the special courses of the school, and the department of drawing and shopwork in the College. The drafting-rooms are three in number, and separated from the noise and vibration of the shops. Abundant and uniform light is provided, rooms on the upper floor having large skylights on the northerly side. There is a forge, moulding, pattern, and machine shop. These are equipped with modern tools and in the most approved manner. Each student is provided with a separate bench, tools, forge, lathe, etc. A twenty-five horse power Buckeye engine furnishes the motive power for the shop, and together with a ten horse power plain slide valve engine serves for experimental work in the study of the steam engine. A one-hundred-and-fifty light dynamo, designed and built at the school, provides the drafting-rooms and shops with electric light. One room is set apart as a study for such of the students as do not room at the College, and others who desire to prepare their lessons at the building.

Course of Study.

FIRST YEAR.

Preparatory Course.

ALGEBRA is begun, and during the first three quarters will include quadratics, radicals, arithmetical and geometrical progression, together with the binomial theorem for positive exponents.

GEOMETRY is begun during the first term, and continued throughout the year. The course includes plane geometry and all of solid, including spherical geometry.

PLANE TRIGONOMETRY may be taken during the fourth quarter.

ENGLISH GRAMMAR AND COMPOSITION is pursued throughout the year.

FRENCH for the entire year is required of those who are preparing for a college course. Special students may elect French.

DRAWING (Freehand) comprises the course required for entrance to the College, together with technical sketching and lettering.

DRAWING (Technical) includes the use of instruments, geometrical problems, elementary problems in projection (orthographic and isometric), tracing, blue printing, etc. Both this and the course in freehand are identical with the college course in drawing, and all (or a part) may be omitted by students fitting for College.

DESCRIPTIVE GEOMETRY may be taken by such students as are sufficiently prepared to enter the college class. This is pursued during the second term, and is required of those taking the two-years' course.

SHOPWORK is elective, and may be taken at any time when it will not interfere with required work.

Electives.

Those who are sufficiently prepared in any of the above studies may elect any of the following:—

Preparation in elementary algebra, as above, will admit to course in college algebra.

Preparation in elementary algebra, plane and solid geometry, will admit to Freshman mathematics.

As the instruction in drawing is largely individual, the student may take the grade for which he is prepared.

SECOND YEAR.

Special Engineering Course.

This part of the course is intended only for those who do not enter the Engineering Department of the College. Students will, however, be admitted to college classes for which they may be fitted.

Advanced Algebra and Trigonometry are pursued with the college classes during the first term.

Analytical Geometry is taken during the first term.

Calculus (Differential and Integral) is studied during the second term. This is elementary, and designed to give the student such a knowledge of the practical use of the science as shall enable him to read, in an intelligent manner, books involving its use.

Applied Mechanics is pursued for one term, and the subjects assigned for design are such as to afford a practical application of the theory. This includes the subject of Graphic Statics.

Machine Drawing. Much attention has been given to the method of presenting this work to enable the student to gain, in the shortest time, a comprehensive knowledge of the practical methods for the graphic representation of mechanical ideas. This work is conducted in precisely the same manner as in a well-organized drafting-room. It consists largely of freehand sketches and plainly finished drawings, made according to the most approved systems. Each student is now provided with a time-card on which a record is kept of the time employed in the execution of all drawings. It is not only necessary that drawings be well made, and accurate, but that a reasonable time be employed in their execution.

Kinematics. Under this head the subject of cams, gearing, links, etc., is treated, and much stress is laid on the practical application of the same. It is taught by means of graphic problems and lectures.

Machine Design is begun as soon as the student has become proficient in the preceding courses, and has acquired neatness, accuracy, and rapidity of execution. He is now encouraged to think and act for himself, thereby developing his intuitive ability and self-reliance. Many of the methods used in connection with this study are believed to be original with the school, and have resulted in a great saving of the student's time.

STEAM ENGINE. A brief course in the theory of steam is pursued in connection with the problems for design of Boilers and Engines. The subject of VALVE GEARS is considered at this time. The student is also taught to apply the INDICATOR and measure the power and consumption of water. Excellent opportunities are afforded at the College for this work, which is of the most practical character.

MOULDING. A short but comprehensive course in the foundry is required of all second-year students. The special object in this training is to acquaint the future designer with the methods employed in the modern foundry, and enable him to judge as to the best methods of constructing patterns. This work is of a very practical nature, consisting of the moulding of a great variety of patterns, the making of cores, and finally, the casting of the more important pieces.

SURVEYING. Such practice in the use of transit and level is afforded the student as shall familiarize him with their use, and enable him to make a simple survey.

Electives.

The following courses may be pursued in connection with the foregoing, when time and previous preparation will permit: —

PATTERN-MAKING. This course includes Carpentry, Turning, Pattern-Making, and Moulding. *Six hours a week* (*first half-year*); *three hours a week* (*second half-year*).

FORGING. In this short course it is designed to make the student familiar with the metals and the method of working them. The exercises include heating, bending, drawing, upsetting, welding, tempering, case-hardening, etc. *Three hours a week (second half-year).*

MACHINE WORK. Vise work in iron, including surface chipping, squaring, and fitting, key-seating, scraping, and polishing. The machine practice consists not only in the operation of turning, planing, drilling, boring, etc., but in a careful study of the machines, their efficiency, and capabilities. *Six hours a week (second half-year).*

PHYSICS. The aim is to present the science of Physics, not as a series of detached subjects, but as a consistent body of doctrine, in which mechanical principles hold throughout, from which all the various phenomena are deducible. Hence, in each branch of the subject there are frequent returns to these first principles. The rapid development of electrical science having quite outstripped text-books, this subject is treated wholly by lectures. *Three hours a week for the year.*

PHYSICAL LABORATORY. In the Physical Laboratory, beginners are given Stewart and Gee's Practical Physics, first volume, for a guide. They work for the most part independently, and each pursues a given subject till satisfactory results are obtained. Glazebrook and Shaw's Practical Physics is followed on the subject of sound, heat, and light, Pickering's Manipulation and Kohlrausch's Measurements being also used to a limited extent. In electricity and magnetism Stewart and Gee's second volume is mainly followed, supplemented, in the case of engineering students, by parts of Gray's Absolute Measurements and Kempe's Testing. In all laboratory work each student records methods and results in a suitable note-book, and is encouraged to do a few things well rather than to go carelessly over a larger ground. *Six hours a week (second half-year).*

CHEMISTRY. Instruction in this subject is given by means of lectures, recitations, and laboratory work. The lectures, which are illustrated by experiments, are intended to cover the ground of theoretical and descriptive inorganic chemistry, and to give the student a thorough knowledge of chemical theories and of the more important chemical elements and their compounds.

Many of the methods for manufacturing chemical products for the market are carefully considered. The laboratory work occupies one-half of the time allotted to General Chemistry. Each student has ample opportunity to test experimentally the truth of chemical theories, and to become familiar with chemical substances and their behavior. The lectures are supplemented by recitations and written exercises. Students are charged for breakage, and four dollars a term for materials used. *Three hours a week for the year.*

General Information.

REQUIREMENTS FOR ADMISSION.

Students will be required to satisfy the instructors in charge of their ability to pursue the studies which they may elect. This may be done by certificate from a school previously attended, or by examination, oral or written, as may be deemed necessary.

In examinations, either for entrance or for advanced standing, the students are considered individually, rather than collectively, in order to give the instructor the fullest knowledge of the standing of the student, and enable the latter to take such a place in the school as shall best fit him for his future work.

REGULATIONS OF THE SCHOOL.

Students are subject to the rules governing college students.

Prompt and regular attendance, together with a faithful performance of all duties, is required.

Polite and orderly conduct is insisted upon, and any damage to school property must be made good by the student causing it.

Students who may elect any of the subjects in the regular college courses must attain at least sixty per cent. in those studies in order to remain with the class.

No change in program is permitted during the term.

Only such students are encouraged to enter as may be thoroughly in earnest and desire to make the most of their opportunities. To such the institution offers exceptional opportunities.

Certificates of proficiency are given the special engineering students who shall complete either of the courses comprised in one year. These certificates state the subjects which have been completed according to the requirements of the institution. No diploma is given or degree conferred.

The tuition fee is one hundred and twenty dollars per year, payable as follows: sixty dollars on or before the 5th of October, and the balance on or before the 15th of March.

No part of the tuition fee will be refunded to pupils who for any reason withdraw from the school before the close of the term for which the fee is paid.

Students board in commons at $3.50 per week; in private families at $3.50 to $5.00 for table board and $1.50 to $2.00 for furnished room. Other expenses vary with the economy of each student. Students living in the college dormitories furnish their own rooms.

The following estimates represent the fixed annual expenses: —

Tuition	$120.00	$120.00
Half-room rent	15.00	75.00
Care of rooms	10.00	10.00
Board $3.50 to $5.00 a week (36 weeks) .	126.00	180.00
Physical training		10.00
Total	$271.00	$395.00

For other information address Gardner C. Anthony, Dean of the Bromfield-Pearson School, Tufts College, Mass.

THE SUMMER SCHOOL OF CHEMISTRY.

The Summer School of Chemistry.

INSTRUCTORS.

FRANK W. DURKEE, A.M.,
Professor of Inorganic Chemistry.

VIRGIL L. LEIGHTON, A.M., PH.D.,
Instructor in Organic Chemistry.

STUDENTS.

1899.

Brown, C. V.	*East Boston.*
Butler, Josiah Tufts College.	*Lowell.*
Chubb, Thomas Briggs Tufts College.	*Tufts College*
Creeley, Oscar Slade Tufts College.	*Belmont.*
Cushman, Clarence Alphonso Tufts College.	*Somerville.*
Cushman, A. W.	*Somerville.*
Gray, J. E.	*Medford.*
Hollis, E. N. Teacher in Public Schools.	*South Weymouth.*
Huested, Alfred Pomfret Tufts College.	*Albany, N. Y.*
Hazelton, Willard Carpenter Tufts College.	*Strafford, Vt.*
Ingalls, Nowell Tufts College.	*Swampscott.*
Kingsbury, Walter Warren Tufts College.	*Walpole, N. H.*
Locke, William Lorenzo Tufts College.	*Watertown.*
Marsh, Frederick Charles Tufts College.	*Greenville, N. H.*
Moran, Thomas Druggist.	*Biddeford, Me.*

Murphy, Louis Sutliffe . . . . *Somerville.*
Tufts College.

Phipps, Ross Elliot . . . . *Watertown.*
Tufts College.

Spofford, George Rawson . . . . *Hudson.*
Tufts College.

Winslow, Evelyn James . . . . *Auburn, Me.*
A. B., Bates College. Instructor in Science, Auburn High School.

THE GENERAL PLAN.

The Summer School of Chemistry, opened in 1897, is in charge of Professor Durkee. Six of the regular college subjects, Chemistry 1, 2, 3, 4, 5, and 10 (see pages 79 to 82), are offered. Each subject has allotted to it the same number of lecture and laboratory periods that are provided for in the regular college curriculum. When satisfactorily completed the term hours which the subjects represent can be counted towards the number required for a degree. Subjects 1, 4, and 5 represent six term hours each, and 2, 3, and 10, three term hours each. The school, therefore, offers exceptional advantages to students of the College who wish to graduate in three years, as well as to students who wish to make up conditions or to lighten a subsequent year's program by working off their chemistry in advance. Applicants for admission to the College in the fall, who wish to offer chemistry for an entrance credit, can do the required work in the school, if not previously prepared for an examination. The school, futhermore, provides an opportunity for teachers in secondary schools to obtain a teaching knowledge of general inorganic chemistry, an elementary knowledge of organic chemistry, and to carry forward the study of chemical analysis.

The sessions of the school are held in the Chemical Building of the College, which is well equipped with lecture-room, laboratories, and modern apparatus for all kinds of chemical work.

EXPENSES.

Tuition for Chemistry 1, $20; for Chemistry 2 and 3, $20, or $12 for one of the two subjects; Chemistry 4 and 5, $20 each; Chemistry 10, $15. The cost of chemicals for each of the subjects 1, 4, and 5 is $8, and $4 each for 2, 3, and 10. Breakage depends entirely upon the care of the student, and averages about $4 in each of the longer courses. Board and furnished rooms can be obtained for $6 a week, and board near the Chemical Laboratory for $3.50 a week. Tuition and cost of chemicals must be paid on the first day of the term.

All communications relative to the Summer School of Chemistry should be addressed to PROFESSOR FRANK W. DURKEE, Tufts College, Mass.

REGISTER OF STUDENTS.

Students.

GRADUATE DEPARTMENT.

[The right-hand column contains the college residence of every student having such residence, the neighboring cities of Somerville and Medford being thus included. The middle column records the home address.]

Fellows.

KEITH, SARAH EMMA . . . . . . *Braintree, Mass.*
B.S., Mt. Holyoke College, 1895. *Miner Fellow in Natural History. First Year. Biology.*

MORTON, GEORGE FISHER . . . *53 Hall Ave., West Somerville.*
B.S., 1899. *Olmstead Fellow in Natural History. First Year. Biology.*

Resident Students.

Gardner, Lucie Marion . . . . . *4 Lynde St., Salem.*
A.B., 1897. *Second Year. English and Latin.*

Hall, Clifford Foster . . . . . . *Nashua, N. H.* 11 Fairmount St.
A.B., 1896. *Second Year. Latin and Music.*

Nash, Waitie Mae . . . . *Woburn.* 568 Main St., Woburn.
A.B., Bates College, 1895. *A.M., Bates College,* 1898. *First Year. English.*

Pattangall, Kate H. . . . . *Pembroke, Me.*
106 Austin St., Cambridge.
A.B., Mt. Holyoke College, 1894. *First Year. Mathematics and Physics.*

Ruddick, William Henderson . . *502 East Broadway, South Boston.*
M.D., Harvard University, 1868. *B.A.S., Harvard University,* 1881. *Third Year. Biology.*

Non-Resident Students.

Craig, Edward Channing . . . . *Helicon Hall, Englewood, N. J.*
A.B., 1895. *First Year. Modern Languages.*

COURSES IN ARTS AND SCIENCES.

[In the following list the course pursued by each student is indicated by the italic letters immediately following the name. The abbreviations are as follows: courses leading to the degree of A.B., *a b;* to the degree of Ph.B., *ph;* to the degree of S.B., —in Civil Engineering, *c e;* in Electrical Engineering, *e e;* in Mechanical Engineering, *m e;* and in the first year of the Engineering Courses, before the differentiation of studies, *e;* to the degree of S.B., through the Science Courses,—in General Science, *sc;* in Biology, *bi;* in Chemistry, *ch;* and Medical Preparatory, *m p.*]

Senior Class.

Abbott, Stephen Edward, *e e*	*Andover*	Middle Hall, 12
Andrews, Charles Masson, *sc*	*Newtonville*	Δ Υ House
Anthony, Madge Agnes, *a b*	*Adams*	Metcalf Hall, 6
Atkinson, Martha Louise, *a b*	*Laconia, N. H.*	Metcalf Hall, 4
Barron, Elmer Walter, *a b*	*Charlestown*	Δ Υ House
Brooks, Joseph Bradford, *c e*	*Portland, Me.*	East Hall, 30
Brown, Louis Raymond, *a b*	*Putnam, Conn.*	East Hall, 33.
Burton, Charles Ernest, *c e*	*2 Homer Sq., Somerville*	West Hall, 18
Chadwick, Henri Francis, *e e*	*Marion*	East Hall, 30
Christian, Leroy Bernard, *c e*	*Auburn, Me.*	Middle Hall, 9
Clark, Carrie Lois, *a b*	*W. Brattleboro, Vt.*	Metcalf Hall, 8
Clark, John Putnam, *a b*	*Jamaica Plain*	Θ Δ Χ House
Cole, Amy Lovett, *a b*	*13 Lincoln St., Somerville*	
Conn, Wallace Thompson, *ch*	*Woburn*	East Hall, 25.
Daniels, Ora George, *a b*	*Chelsea*	Dean Hall, 2
Davis, Ethel, *ph*	*Yarmouthport*	Metcalf Hall, 5
Dearborn, Luther Gould, Jr., *a b*	*169 Sycamore St., Somerville*	
Fay, Ethel Lincoln, *a b*	*92 Professors Row, Tufts College*	
Harmon, Ethel Bryant, *a b*	*114 Curtis St., West Somerville*	
Hart, Lester Stanley, *a b*	*Adams*	East Hall, 33
Haynes, Louis Henry, *e e*	*Newtonville*	East Hall, 24
Hill, Adella Richards, *a b*	*22 Grand View Ave., Somerville*	
Hunting, Ethel Parker, *a b*	*66 Highland Ave., Somerville*	
Ingalls, Mary Anna, *a b*	*Auburn, Me.*	Metcalf Hall, 13
Kempton, George Rutherford, *e e*	*Albany, N. Y.*	Θ Δ Χ House
Kirkpatrick, Charles Darrow, *c e*		East Hall, 29
Lamb, Arthur Beckett, *a b*	*Attleboro*	Δ Υ House
Lamb, Roland Manchester, *a b*	*Attleboro*	Δ Υ House
Lane, Elizabeth Caldwell, *a b*	*165 Brooks St., West Medford*	
Locke, William Lorenzo, *c e*	*Watertown*	East Hall, 8
Lovell, Ernest Mills, *e e*	*Wayland*	East Hall, 17
Meader, Edgar Keene, *m p*	*Marblehead*	West Hall, 11
Parker, Laurence Houghton, *a b*	*Newtonville*	Δ Υ House
Pettengill, Clarence Albert, *sc*	*Hudson*	Dean Hall, 11

Phipps, Ross Elliot, *c e*	*Watertown*	Δ Υ House
Raby, John William, *c e*	*So. Manchester, Conn.*	East Hall, 29
Restall, Charles Henry, *c e*	*Chelsea*	East Hall, 17
Root, Francis Solomon, *e e*	*East Douglas*	East Hall, 15
Shipman, Margaret Maude, *ph*	*Lewistown, Mont.*	26 Conwell Ave., West Somerville.
Spaulding, Alice Howard, *a b*	*10 Putnam St., Somerville.*	
Spaulding, Ernest Leonard, *a b*	*Jaffrey, N. H.*	11 William St., Somerville.
Spooner, Harriet Maria, *a b*	*Hinsdale, N. H.*	26 Conwell Ave., West Somerville.
Tarbox, Carl Clifton, *a b*	*Biddeford, Me.*	Δ Τ Δ House
Thomas, Irving Bloom, *a b*	*So. Manchester, Conn.*	East Hall, 25
Tousey, Ruth, *a b*	*106 Professors Row, Tufts College*	
Wagner, Robert Edward, *e e*	*Provincetown*	East Hall, 24
Waterman, Harry Oliver, *a b*	*Jamaica Plain*	Ζ Ψ House
Webber, Abbott Reed, *a b*	*Bedford*	West Hall, 11
White, Abbie Park, *a b*	*Taunton*	Metcalf Hall, 1

Junior Class.

Almeida, Edward Mackay de, *ph*	*Somerville*	Ζ Ψ House
Armstrong, Roger Wellington, *a b*	*Waltham*	Dean Hall, 10
Armstrong, Sara Mitchell, *a b*	*79 Buckman St., Everett*	
Berry, Joseph Francis, *ph*	*Mattapan*	Dean Hall, 12
Boutelle, Arthur Maynard, *a b*	*Townshend, Vt.*	West Hall, 16½
Browne, Annie Marguerite, *a b*	*13 Winslow Ave., W. Somerville*	
Cabot, Harry Dwight, *a b*	*Newtonville*	Δ Υ House
Chilson, Dean Leroy, *c e*	*Franklin*	East Hall, 8
Chubb, Thomas Briggs, *c e*	*Tufts College*	East Hall, 1
Collins, Lester Wright, *e e*	*Meriden, Conn.*	Dean Hall, 10
Day, Francis Adams, *ph*	*Fitchburg*	West Hall, 18
Dodge, Carrie Gould, *ph*	*Orleans*	Metcalf Hall, 12
Doten, Mabel Willard, *a b*	*Plymouth*	Metcalf Hall, 16
Eriksson, August Isidor, *a b*	*Lawrence*	Δ Τ Δ House
Farrell, Ellen Frances, *a b*	*27 Austin St., Somerville*	
Foster, Kingsbery, *a b*	*Derby Line, Vt.*	West Hall, 8
Frost, Jennie Clifton, *a b*	*58 Old Mystic St., Arlington*	
Goodell, Robert Edward, *m e*	*Lowell*	West Hall, 23
Hall, Samuel Thomas, *e e*	*Sharon*	West Hall, 5
Hawes, Austin Foster, *a b*	*Somerville*	East Hall, 34
Hayford, Frank Leslie, *ph*	*Montpelier, Vt.*	West Hall, 14
Humes, Wesley Goodrich, *ph*	*Fitchburg*	Dean Hall, 12
Ingalls, Nowell, *a b*	*Swampscott*	Dean Hall, 6
Jenkins, Meritt, *ph*	*N. Weymouth*	West Hall, 10

Joy, William Macy, *e e*	*Meriden, Conn.*	East Hall, 2
Kinne, Edith Buffum, *a b*	*Barre, Vt.*	17 Latin Way
Knight, Gertrude, *a b*	*114 Professors Row, Tufts College.*	
MacQuinn, Marion Putnam, *a b*	*Melrose Highlands*,	Metcalf Hall, C.
Marsh, Frederick Charles, *e*	*Greenville, N. H.*	West Hall, 9
Mulliken, William Emory, *a b*	*Somerville*	Δ Υ House.
Murphy, Louis Sutliffe, *ch*	*Somerville*	West Hall, 9
Perham, Bertha Annah, *a b*	*22 Marshall St., Somerville*	
Pierce, Leslie Dean, *ph*	*Rochester, Vt.*	West Hall, 21
Pipe, Monica Glassborough, *ph*	*75 Wallace St., West Somerville*	
Polk, Ellery Channing, *a b*	*Tufts College*	West Hall, 16
Price, William Hyde, *a b*	*24 Orchard St., Medford*	
Reed, Ethel Gardner, *a b*	*1 Curtis Ave., West Somerville*	
Rines, Mary Alice, *a b*	*South Berwick, Me.*	52 Hillside Rd.
Rollins, Edwin Butler, *e e*	*Westbrook, Me.*	East Hall, 2
Ryan, Anna Imelda, *a b*	*274 School St., Waltham*	
Sayles, Christine, *a b*	*Adams*	Metcalf Hall, 6
Seede, John Augustine, *e e*	*Lowell*	East Hall, 19
Shearer, Edith May, *ph*	*33 Belmont St., Somerville*	
Sibley, Julius Russell, *a b*	*Spencer*	West Hall, 10
Smith, Reginald Forster, *a b*	*Lowell*	West Hall, 5
Spofford, George Rawson, *e e*	*Hudson*	West Hall, 13
Thomas, Ralph Danford, *c e*	*Portland, Me.*	West Hall, 1
Tolman, Charlotte Adelaide, *a b*	*23 Everett St., Medford*	
Tucker, James Irwin, *c e*	*Tufts College*	East Hall, 6
Turner, Harry Chester, *ph*	*Tufts College*	West Hall, 28
Walker, Clarence Doane, *e e*	*Stafford Springs, Conn.*	East Hall, 19
Wells, Leslie Custer, *a b*	*Foxboro*	Δ Υ House
Wilson, Stanley Calef, *ph*	*Washington, Vt.*	West Hall, 15
Woodward, Albert Sewell, *a b*	*Stoneham*	West Hall, 12
Wright, Bertha Louise, *ph*	*Somerville*	Metcalf Hall, 14

Sophomore Class.

Abbe, Lena Pease,	*Springfield*	119 Adams St., Medford
Austin, William Willis, *e e*	*Salem*	Δ Υ House
Bailey, Dana Clark, *a b*	*Cumberland Mills, Me.*	West Hall, 19
Baker, Clair Lincoln, *ch*	*Wollaston*	Dean Hall, 2
Bickford, Wallace Mellen	*Auburn, Me.*	Δ Τ Δ House
Brade, William Abram, *a b*	*Tufts College*	West Hall, 31
Burke, Josephine Rosamond, *a b*	*157 Albion St., Somerville*	
Capen, Ruth Paul, *a b*	*Tufts College*	8 Professors Row
Coolidge, Richard Bradford, *a b*	*Woodfords, Me.*	West Hall, 27
Dame, Ruth Burleigh, *a b*	*Hastings Lane, Medford*	

Danforth, Joseph Dexter, *a b*	*Tyngsboro*	East Hall, 3
Dodge, Bertha Alma, *a b*	*Brattleboro, Vt.*	26 Conwell Ave., West Somerville
Endicott, Winthrop Tingley, *e e*	*Chelsea*	East Hall, 9
Fox, Carrie Edwards, *a b*	*383 Elm St., West Somerville*	
Hanson, Susie Myrtle, *a b*	*Boston*	26 Conwell Ave., West Somerville
Hazelton, Willard Carpenter, *e*	*Strafford, Vt.*	
Hawley, Dexter Reynolds, *e e*	*Waltham*	West Hall, 2
Hersey, Arthur William, *e e*	*Dorchester*	West Hall, 3
Holmes, Isabel, *a b*	*Kingston, N. Y.*	Metcalf Hall, 10
Hoyt, Anadine, *a b*	*Lewiston, Me.*	17 Latin Way
Hussey, Harry Brigham, *e e*	*Hudson*	West Hall, 29
Ingalls, Granville, *ph*	*Swampscott*	Dean Hall, 6
Johnson, Edna Henderson, *a b*	*Spencer*	Metcalf Hall, 11
Knight, Mabel Frances, *a b*	*18 Hazel Park, Everett*	
Lewis, Katherine Brooks, *a b*	*130 Allston St., West Medford*	
Lovell, Sarah Emily, *a b*	*Wayland*	
Lunt, Forrest Sumner, *sc*	*Somerville*	West Hall, 6
Lyon, Blanche Elizabeth, *a b*	*392 Broadway, Somerville*	
Main, Alexander, *a b*	*Pawtucket, R. I.*	East Hall, 18
Manchester, Albert Everett, *m e*	*Providence, R. I.*	West Hall, 29
McCoy, Agnes Irene, *a b*	*62 Main St., Somerville*	
Moors, Charles Ernest, *a b*	*Marlboro, N. H.*	West Hall, 22
Morley, Herbert Morley, *e e*	*Baldwinville*	East Hall, 20
Morse, Arthur Henry, *a b*	*Salem*	Δ Υ House
Myles, Leo Thomas, *a b*	*Cambridge*	
Paine, Alice Cecil, *ph*	*Hyde Park*	17 Latin Way
Paterson, Fred William, *e e*	*Portsmouth, N. H.*	Dean Hall, 5
Parker, Mary Bates, *a b*	*19 High St., Everett*	
Paul, Emma Franklin, *a b*	*23 Monmouth St., Somerville*	
Peirce, Herbert Russell, *ph*	*27 Appleton St., Arlington Heights*	
Rallion, Harriet Elizabeth, *a b*	*Norwich, Conn.*	Metcalf Hall, 10
Roberts, Blanche Ethel, *a b*	*Malden*	Metcalf Hall, 9
Russell, Elizabeth Adams, *a b*	*182 Cambridge St., Winchester*	
Schneck, Emil Monger, *c e*	*Shelbourne Falls*	Middle Hall, 11
Schoolfield, Harrison Herbert, *e e*	*Tufts College*	East Hall, 20
Shute, Henry Martin, *a b*	*Salem*	East Hall, 9
Stowell, Edith Helen	*Farley*	26 Conwell Ave., West Somerville
Sturtevant, Malcolm Eben, *a b*	*Somerville*	East Hall, 34
Tarr, Forrest Elliott, *c e*	*Marblehead*	West Hall, 2
Titcomb, Grace, *a b*	*Farmington, Me.*	7 Francesca Ave., West Somerville

Titus, Marian Lucy, *a b*	*10 Raymond Ave., West Somerville*	
Tuttle, Florence Rollins, *a b*	*Salem*	Metcalf Hall, A
Warren, Mary Whittemore, *a b*	*Leicester*	Metcalf Hall, 11
Watkins, Florice Alison, *a b*	*So. Manchester, Conn.*	17 Latin Way.
Woodbridge, Arthur Gerry, *a b*	*Medford*	West Hall, 1
Wyman, Walter Forestus, *ph*	*Hyde Park*	West Hall, 8

Freshman Class.

Bearce, Clarence Prescott, *ch*	*21 Wyman St., West Medford*	East Hall, 11
Bixby, Herbert Dallas, *ph*	*Lowell*	West Hall, 7
Bruce, Blanche Louise, *a b*	*Stoneham*	90 Curtis St., West Somerville
Burroughs, Thomas Fleury, *ph*	*Stockbridge, Vt.*	West Hall, 12
Bursch, Clare Louise, *ph*	*Hyde Park*	Metcalf Hall, 2
Bush, Edith Linwood, *a b*	*Chelsea*	Metcalf Hall, 3
Cannell, Winburn Scott, *a b*	*Bridgton, Me.*	85 Jenny Lind Ave., Somerville
Chandler, Clarence Luther, *m p*	*Townsend*	East Hall, 22
Chisholm, William Percy, *e*	*Marblehead*	West Hall, 26
Coolidge, Arthur William, *a b*	*Portland, Me.*	West Hall, 27
Coombs, Isabel Hall, *a b*	*Stoneham*	90 Curtis St., West Somerville
Cooper, Ashton B., *e*	*Picton, Ont.*	East Hall, 14
Creeley, Oscar Slade, *sc*	*Belmont*	East Hall, 18
Dame, Olive Arnold, *a b*	*Hastings Lane, Medford*	
Farnsworth, Louise Melinda, *a b*	*Natick*	Metcalf Hall, 12
Fisher, Gertrude Isabelle, *ph*	*Fitchburg*	9 Raymond Ave., West Somerville
Fiske, Samuel Spaulding, *a b*	*Franklin*	Θ Δ Χ House
Friend, Edna Mary, *a b*	*33 Wallace St., West Somerville*	
Gibbs, Julia Frances, *a b*	*51 Harris St., Waltham*	
Gordon, Charles Seaver, *e*	*40 Forest St., Roxbury*	
Hall, Mabel Emilie, *a b*	*9 Veazie St., Somerville*	
Harmon, Ruth Moulton, *a b*	*114 Curtis St., West Somerville*	
Harrington, Robert Brine, *a b*	*Somerville*	East Hall, 4
Hayden, Philip Meserve, *a b*	*Augusta, Me.*	East Hall, 28
Hersey, Harry Adams, *a b*	*Dorchester*	West Hall, 3
Jenks, Daniel Ashley, *a b*	*Holyoke*	Dean Hall, 9
Kelly, Louis, *a b*	*Dorchester*	East Hall, 4
Kingsley, Mary Winship, *a b*	*Tufts College,*	*128 Professors Row*
Knight, Thomas Sawyer, *e*	*Tufts College,*	*114 Professors Row*
Lauriat, Leonard, *e*	*12 Salem St., Medford*	Middle Hall, 10

Linscott, Harry DeLuce, *ph*	*North Woburn*	East Hall, 12
Littlefield, Ethel Frances, *a b*	*Braintree*	90 Curtis St., West Somerville
Low, William Henry, *ch*	*North Cambridge*	East Hall, 7
Lowell, Charlotte Raymond, *a b*	*43 Madison St., Somerville*	
Lyons, Lena Abbie, *a b*	*Bradford*	Metcalf Hall, 15
Manbert, Ray Barton	*Buffalo, N. Y.*	Θ Δ Χ House
Marion, Guy Elwood, *a b*	*Woburn*	East Hall, 12
Mason, Joseph Eaton, *a b*	*Philadelphia, Penn.*	East Hall, 19
Merrill, John Bryant, *ph*	*Bangor, Me.*	East Hall, 5
Merritt, Harry Tirrell, *ph*	*Nash*	Middle Hall, 5
Mills, Thornton Anthony, *a b*	*Oakland, Cal.*,	Δ Υ House
Moore, Ethel Almira, *a b*	*37 Madison St., Somerville*	
Moulton, Oren McKenney, *e*	*Gorham, Me.*	12 Curtis Ave.
Murphy, Arthur, *ch*	*Wollaston*	East Hall, 26
Page, Harry Stanley, *e*	*North Woburn*	East Hall, 27
Peck, Willard Palmer, *ph*	*Bangor, Me.*	East Hall, 31
Pember, Martha Euphemia, *a b*	*Bangor, Me.*	Metcalf Hall, 7
Pierce, Charles Tabor	*East Calais, Vt.*	West Hall, 15
Price, Lawrence Marsden, *a b*	*24 Orchard St., Medford*	
Puffer, Ethyl Winnifred, *ph*	*9 Raymond Ave., West Somerville*	
Richardson, Horace Kimball, Jr., *sc*	*Medford*	West Hall, 27
Ryan, Olive Katharine, *a b*	*274 School St., Waltham*	
Smith, Irving Livingstone, *e*	*58 Chatham St., Lynn*	
Spring, George Edward, *ph*	*Holliston*	West Hall, 22
Story, Chester Bradstreet, *ph*	*Uxbridge*	Middle Hall, 7
Totman, Ezra Percy, *e*	*Fairfield, Me.*	Δ Τ Δ House
Tufts, Elsie, *a b*	*37 Heath St., Somerville*	
Weatherbee, Caroline Louisa, *a b*	*Bangor, Me.*	Metcalf Hall, 7
Webber, Frank, *e*	*Guilford, Me.*	East Hall, 31
White, Richard Nathan, *e*	*Franklin*	East Hall, 21
Wills, John Burdett, *e*	*126 Highland Ave., Winchester*	
Wood, Chandler Mason, *a b*	*Fort Plain, N. Y.*,	Dean Hall, 5
Woodworth, Clarence Field, *e*	*Providence, R. I.*	East Hall, 13
Yates, Frank Brightman, *sc*	*Waterville, Me.*	Ζ Ψ House

Special Students.

[In the following list the Roman numeral indicates the year of attendance, and the italicized department name is that of the student's major department.]

Allison, Irnie Emma III. *English.*	*Cherokee, Ia.*	Metcalf Hall, 14
Bartlett, Daisy Mae I. *German.*	*47 Madison St., Somerville.*	

Benedict, Frank Howe III. *Mathematics.*	*Williamstown, Vt.*	West Hall, 13
Blaisdell, Albert Chester III. *Chemistry.*	*No. Woburn*	East Hall, 12
Bowen, James Francis II. *Political Science.*	*Boston*	East Hall, 7
Burrage, John Otis IV. *Civil Engineering.*	*Lowell*	Θ Δ Χ House
Butler, James Percy I. *Political Science.*	*40 Gilman St., Somerville*	
Butler, Josiah III. *Electrical Engineering.*	*Lowell*	West Hall, 23
Clarke, Marguerita Lewis I. *English.*	*160 Highland Ave., Somerville*	
Conway, Bessie Adèle II. *Latin.*	*37 Flint St., East Somerville*	
Cook, Helen Adelaide III. *Music.*	*379 Massachusetts Ave., Arlington.*	
Coughlin, Frank William IV. *Mathematics.*	*Lowell*	East Hall, 15
Cox, Harriet Agnes II. *English.*	*West Medford*	
Cushman, Arthur Wesley I. *Mathematics.*	*Somerville*	Dean Hall, 11
Eills, John, B.D., '97 II. *Political Science.*	*Tufts College*	West Hall, 17
Ellis, Arthur Eugene I. *Chemistry.*	*W. Somerville*	West Hall, 7
Flagg, Ford Tyler I. *Physics.*	*Richmond, Vt.*	West Hall, 25
Foster, Cornelia Chase I. *English.*	*Lowell*	2 Curtis Ave.
Foster, Hiram Elisha I. *English.*	*Derby Line, Vt.*	West Hall, 14
Gale, Clinton Fifield II. *Philosophy.*	*Barre, Vt.*	West Hall, 25
Horan, Alice Gertrude I. *French.*	*Charlestown*	Metcalf Hall, 15
Jackson, Gertrude Ada I. *English.*	*86 Otis St., Medford.*	

Kingsbury, Walter Warren IV. *Biology.*	*Walpole, N. H.*	Δ Υ House
Lamb, Joseph Allen I. *Physics.*	*Northfield, Vt.*	West Hall, 25
Lincoln, Edward Reynolds I. *Chemistry.*	*Waltham*	
Mills, Nathaniel C., I. *Electrical Engineering.*	*Malden, Mass.*	
Nason, Robert Edward I. *English.*	*Jamaica Plain*	Dean Hall, 7
O'Donnell, Thomas Joseph I. *English.*	*Lowell*	West Hall, 5
Peirce, Arthur Cyrus II. *Engineering.*	*Athol*	East Hall, 16
Perkins, Oscar Houston I. *Political Science.*	*Danvers*	West Hall, 6
Preble, Alfred Emerson I. *Biology.*	*Wilmington*	East Hall, 27
Provan, Walter Fairfield I. *Chemistry.*	*Dorchester*	20 Munroe Terrace
Ray, Joseph Gordon, 2d II. *Political Science.*	*Unionville*	Δ Τ Δ House
Smith, Stella Annette I. *Chemistry.*	*Tufts College*	*Sawyer Ave.*
Smith, William Morgan I. *Biology.*	*Somerville*	East Hall, 14
Stearns, Carrie Judd II. *Music.*	*151 Warren Ave., Boston*	
Towle, Walter Volney I. *Physics.*	*Amsterdam, N. Y.*	East Hall, 11
Whiting, Spencer Draper II. *Biology.*	*Pawtucket, R. I.*	West Hall, 26
Willis, Warwick Archibald I. *Music.*	*29 Cushing St., Waltham.*	
West, William Clough III. *Chemistry.*	*Concord, N. H.*	East Hall, 6

DIVINITY SCHOOL.

[The right-hand column contains the college residence of every student having such residence, the neighboring cities of Somerville and Medford being thus included. The middle column records the home address.]

Graduate.

Patterson, Chas. Franklin, B.D.	*Medford*	323 Boston Ave.

Senior Class.

Hill, Johnson Washington	*Everett*	
Lewis, Lester Lothrop	*Providence, R. I.*	Paige Hall, 1.
Spear, Stanley Gates	*Hartland, Vt.*	Paige Hall, 31.

Middle Class.

Allen, Pliny Arunah, Jr.	*Mattapoisett*	Paige Hall, 13.
Couden, William Chase A.B., Buchtel College, 1898.	*Concord, Mich.*	Paige Hall, 18.
Moore, Willis Albert A.B., 1898.	*Somerville*	12 Curtis Avenue.
Myers, Charles N.	*Detroit, Mich.*	Paige Hall, 5.

Junior Class.

Cole, Fred Henry	*Ludlow, Vt.*	Paige Hall, 19.
Colson, George William	*Salem*	Paige Hall, 6.
Crowell, Arthur Freeman A.B., Brown University, 1899.	*Providence, R. I.*	Paige Hall, 7.
Fuller, George Washington	*Bangor, Me.*	Δ Υ House.
Hatch, Wallace	*Roxbury*	Paige Hall, 20.

Sub-Junior Class.

Maxwell, Alfred Roscoe	*Moore's Mills, W. B.*	Paige Hall, 30.

Special Student.

Perkins, Oliver Howard	*New Bedford.*	

MEDICAL SCHOOL.

Senior Class.

Bartlett, Philip Challis	*Amesbury.*
Bolles, Celia June	*Worcester.*
Caplan, Elias	*Portland, Me.*
Chesley, Alice Maud Mary	*Exeter, N.H.*

Clark, Genevieve, M.D.	*Cambridge.*
Coriat, Isador Harry	*Boston.*
Cushing, Adelaide Olga	*Boston.*
Doucett, Frederick Luke	*Stoneham.*
Dunbar, Frank Herbert	*Mansfield.*
Forster, Robert William	*Lawrence.*
Goodrich, Harriet Rawson, B.S.	*Salem.*
Gray, Alice Maude	*Dorchester.*
Greene, Eva Keith	*Boston.*
Hamblen, Howard	*Somerville.*
Hannaford, Charles William	*Portsmouth, N.H.*
Hayes, Wentworth Larrabee	*Gardiner, Me.*
Howe, Winfred Lewis	*Cambridge.*
Huck, Marie Estelle, M.D.	*Austin, Texas.*
Hughes, George Frederick, Jr.	*Somerville.*
Ingraham, Amanda Elizabeth	*Providence, R.I.*
Journeay, Warren William	*Boston.*
Kirshner, Adelaide Rosalind	*Boston.*
Lewis, Marion	*Jamaica Plain.*
Lindquist, Carl Augustus	*Brockton.*
Lowell, Hannah	*Auburn, Me.*
Lowney, John Francis	*Fall River.*
McLean, Norman Thomas, Ph.G.	*Boston.*
McNamara, John James	*Brockton.*
Miles, Mary Ina	*Burlington, Vt.*
Miller, Richard T	*New York City, N.Y.*
Patch, Jennie June	*Boston.*
Pike, Winfred Carle	*Cornish, Me.*
Price, Oscar Jay	*Milton.*
Schrœder, May Catherine	*New York, N.Y.*
Stewartson, Charlotte Dodd	*Manchester, N.H.*
Weil, Edna Helen	*Boston.*
Williams, Charles Edward	*Boston.*
Woodworth, John Dawson Roswell	*Boston.*

Junior Class.

Ash, Thomas Francis	*Weymouth.*
Beddall, Albert Richard	*Chelsea.*
Blaine, Walter Edward	*Fairhaven.*
Chakravarti, Satis Chandra, F.A.,	*Calcutta, India.*
Cheever, John Howard	*Portsmouth, N.H.*
Clement, Merton Wallace	*Mattapan.*
Cogan, Thomas F.	*Lynn.*
Converse, Ralph Dent	*New York, N.Y.*

Coyne, Thomas Joseph, M.D.V.	*Boston.*
Currier, Richard Doe	*Boston.*
Dadmun, Eliza Josephine	*Boston.*
Dacey, Cornelius J.	*Boston.*
Duckering, Florence West	*Dorchester.*
Durgin, Edward Chase	*E. Andover, N.H.*
Fennell, William Hobin	*Lawrence.*
Gilman, Florence	*Toledo, O.*
Grandison, Wilfred George	*Charlestown.*
Hale, Robert Carleton	*Boston.*
Hayes, Blanche Adelyn	*Groveton, N.H.*
Killory, George Leo	*Weymouth Centre.*
Kirby, William Walter	*Providence, R. I.*
Loewe, Leonard Joseph, M.D.V.	*Norwood.*
Lovell, Harriet Jane	*Boston.*
McLeod, John Scott	*Boston.*
Middleton, Willis Johnson	*Waverly.*
Myers, Laura T.	*Boston.*
Nickerson, John Peter, B.S.	*West Harwich.*
Obear, Marion Helena	*Wellesley.*
Otis, Susanna	*New Orleans, La.*
Plainfield, Mark Henry	*Woonsocket, R.I.*
Parker, Albert Munro	*Boston.*
Pastene, Albert Angelo	*Dorchester.*
Pease, Charles Valentine	*Dorchester.*
Rundlett, David Livingstone	*Boston.*
Shea, Alfred Drake	*Cambridge.*
Stickney, Whitman Gibson	*E. Brownfield, Me.*
Thyng, Cora Hannah	*New Hampton, N.H.*
Tingley, Louisa Paine	*Providence, R.I.*
Whitman, William Dutcher	*Malden.*
Williams, Hubert Joseph	*Boston.*

Sophomore Class.

Adams, Eva Argene	*Brunswick, Me.*
Aspray, Joseph	*Sudbury.*
Averell, Charles Wilson, A.B., A.M.	*Boston.*
Baker, Lily Owen	*Boston.*
Barnum, Charles James	*Richmond, Va.*
Baskerville, J. N.	*Boston.*
Blake, James Henry, Ph.G.	*Boston.*
Blodgett, Henry P.	*Leominster.*
Bloomberg, Simon	*Boston.*
Brooks, Edith May	*Springfield.*

Clarke, George Haven	*Concord, N.H.*
Cox, Le Baron Ward	*Bar Harbor, Me.*
Croswell, Mary Sibylla, A.B.	*Farmingt'n Falls, Me.*
Curran, Simon F.	*Dorchester.*
Curtis, George Walter	*Stanstead, P. Q.*
Daignault, Godfrey	*Woonsocket, R. I.*
Davis, John Henry, A.B., A.M.	*Georgetown.*
Dubois, Eoline Beatrice Church	*Edgewood, R. I.*
Eldridge, Harvey Loud	*East Boston.*
Feeley, Charles Philip	*Cambridge.*
Finegan, Daniel Joseph	*Gloucester.*
Fisher, Samuel, Jr., A.B.	*Portsmouth, Va.*
Gallagher, John Vincent, A.B.	*Milford.*
Gill, Mary Eva	*Brookline.*
Gillette, George William	*Boston.*
Graham, William Jackson	*Providence, R. I.*
Harriman, Cora Elizabeth	*Framingham.*
Henry, James E. F.	*Boston.*
Hodgdon, Ralph Franklin	*Gloucester.*
Homans, Robert Edward	*Lexington.*
Hurwitz, Abraham J., Ph.G.	*Boston.*
Jackman, Alice May	*Wakefield.*
Konikow-Buckholz, Antonie F., A.B.	*Boston.*
Lawrence, Maud Mary	*Boston.*
Lawton, William Francis	*Charleston, S. C.*
Lilienthal, Alice Estelle	*Cambridge.*
Lucas, Julian Dyer	*Norwich, Conn.*
MacCormick, John Allen	*Lake Ainslie, N. S.*
Macdonald, Frederick Cornelius	*Boston.*
MacKay, Andrew Joseph	*Salem.*
Malone, Charles	*Boston.*
Malone, John, LL. B.	*Boston.*
Masse, Mathilde Marie	*Boston.*
Mayell, Ernest Alfred	*Watertown.*
Mitchell, Ethel Susanna	*Plymouth, N. H.*
Montgomery, Mary Isabel	*Charlottetown, P.E.I.*
Morgner, Richard August, Ph. G.	*Clinton.*
Morse, Frank W.	*Sudbury.*
Mueller, Karl A. A.	*Boston.*
Murphy, Frank Augustine	*Taunton.*
De Olloqui, Marie Jeannette	*Kingston, N. B.*
Ordway, Mabel D.	*Dorchester.*
Osborne, Arthur Decatur, A.B.	*Somerville.*
Osborne, Ernest Sumner	*Rochester, N. H.*

Paine, Alonzo Kingman	*Hyannisport.*
Page, Edward Lewars	*Lancaster, Pa.*
Pearman, William S., D.D.S.	*Boston.*
Pease, Lewis Waite	*Weymouth.*
Peters, William Chute	*Newburyport.*
Ravich, Simon	*Boston.*
Rich, Charles Edwin	*Auburn, Me.*
Rose, William Milton	*Cambridge.*
Sanborn, Edwin P.	*Ashland, N. H.*
Simmons, Hannah Coralyn	*Worcester.*
Stickney, Elizabeth Mary	*Dorchester.*
Smeltzer, James Finlay	*Boston.*
Tangney, Charles William	*Rockland.*
Thomas, Emery Jordan	*Lewiston, Me.*
Winslow, Guy M.	

Freshman Class.

Andrews, Joseph	*Dorchester.*
Baker, Annie Rose	*Boston.*
Baker, Ida Belle	*New Boston, N. H.*
Barrington, Edwin Russell	*Boston.*
Bishop, George Nelson	*Malden.*
Boden, Arthur Richard	*Boston.*
Brown, Algernon Sydney	*Kingston.*
Caswell, Bertram Horace	*Charlestown.*
Ceconi, John A.	*Dorchester.*
Collins, Aubrey John	*Boston.*
Collins, Thomas Herbert	*Methuen.*
Coulson, Richard	*Arlington Heights.*
Daly, Jeremiah James	*Andover.*
Derby, Frederick William	*Arlington.*
Derrick, George William	*Cambridgeport.*
Donlon, James W.	*Natick.*
Doring, Charles H.	*Watervliet, N. Y.*
Downing, Charles Harland	*Portsmouth, N. H.*
Elliott, Alfred	*Boston.*
Faxon, Eudora W.	*Boston.*
Ferguson, Creighton	*Cambridge.*
Gray, Mason Carroll	*Mystic, Conn.*
Haley, Prue Antoinette	*Somerville.*
Halsall, Mary E.	*East Boston.*
Hardwick, Frederick Veazie	*Quincy.*
Hayes, Mary Ayers	*Keene, N. H.*
Herrick, Joseph Segismund	*Lowell.*

Herring, Will Mortimer	*North Attleboro.*
Holden, Nebuther	*Everett.*
Horne, Lester Wallace	*Norway, Me.*
Haviland, Walter Childs	*Holliston.*
Imminck, Harry William	*England.*
Jacques, Frank B.	*Roxbury.*
Joyce, James Henry	*Salem.*
Keeler, William Basil	*Boston.*
Kelly, John Joseph	*Dorchester.*
Kendall, George Ralph	*Brentwood.*
Kerr, Isabelle Dickieson	*Medford.*
Kerr, Jean Stuart	*St. Andrews, N. B.*
Lamb, Joseph Elmo	*Revere.*
Langworthy, Henry Glover	*Dubuque, Io.*
Laws, Sophie Goudge	*Windsor, N. S.*
Lynch, James Michael, A.B.	*Norwich, Conn.*
Maciver, Alexander J.	*Newport, R. I.*
Makechnie, Arthur North	*Somerville.*
Mahoney, Francis Aloysius	*Chelsea.*
Meader, Edgar Keene	*Marblehead.*
McElroy, Frank Henry	*Providence, R. I.*
Moore, Henry N.	*Boston.*
Moran, Thomas, Jr.	*Biddeford, Me.*
Morse, Frank Wilmot	*Sudbury.*
Murphy, Edward Martin	*Lowell.*
Newman, Leon	*Boston.*
O'Brien, John Henry	*Springfield.*
O'Brien, Joseph John	*Dorchester.*
O'Brien, Loretta Joy	*Chelsea.*
O'Brien, William Francis	*Pawtucket, R. I.*
Palmer, Louis J.	*Boston.*
Parmenter, Francise	*Charlestown.*
Parr, John	*Lawrence.*
Peabody, Anna Howe, A.B.	*Danvers Center.*
Percival, Charles G.	*Boston.*
Pike, Sarah Poore	*Tewksbury.*
Plunkett, Harold Brabazon	*Lowell.*
Polman, Charles James	*Boston.*
Pohl, Carl Mathias	*Brockton.*
Reis, Frederick	*Boston.*
Rice, Florence F.	*Boston.*
Riordan, Walter Daniel, B.S.	*Lawrence.*
Scanlan, Thomas J.	*East Boston.*
Sheehan, William J.	*South Boston.*

Skinner, Ralph Douglas	*Jamaica Plain.*
Smith, John Frederick	*South Boston.*
Sullivan, Frank	*St. Stephens, N. B.*
Swan, Horace Cheney	*Roxbury.*
De Sorgher, Louis Lee	*Boston.*
Taylor, Horace Scales	*Wollaston.*
Thurber, Stephen Francis	*Warren, R. I.*
Topaz, Anna	*Boston.*
Trower, Arthur Henry	*South Boston.*
Turner, George William	*Fall River.*
Turner, James Henry	*Salem.*
Varnum, Leavitt R. J.	*Lowell.*
Watson, David R.	*Lowell.*
Wernick, Benzion G.	*Boston.*
Whittle, John A.	*Wakefield.*

Special.

Aberle, Lillie Anastasia	*Boston.*
Arnold, Cora E. B.	*Providence.*
Barron, Elmer W.	*Tufts College.*
Bazin, Edmond	*Haverhill.*
Dearborn, Reuben Baston	*Brookline.*
Ellis, Edward Keith	*Hyde Park.*
Foster, Ellis Edwin	*Morrisville, Vt.*
Greany, Annie Gertrude	*Fall River.*
Moulton, Star Abner	*Boston.*
Orr, Alice	*Cambridge.*
Orr, Jane	*Boston.*
Skinner, Edna E.	*Lynn.*
Smith, John F.	*South Boston.*
Stiles, Ned Carroll, M.D.	*St. Johnsbury, Vt.*
Shohon, Joseph	*Boston.*
Walker, Alba Gustavus	*Boston.*
White, Lucy Nye	*Boston.*
Whiting, Spencer D.	*Pawtucket, R. I.*
Yerv, Theodore	*Fellin, Russia.*

DENTAL SCHOOL.

Senior Class.

Baxter, John Robbins	*Hyannis.*
Besse, Frank Adelbert	*Montvale.*
Bulger, Edward Valentine	*South Boston.*
Burbank, John Swift	*Brockton.*

Callaghan, Thomas Henry	*S. Framingham.*
Chapman, Louis Nathan	*Roxbury.*
Chase, Walter Edwin	*Laconia, N. H.*
Chester, Horace Coryell	*Malden.*
Collier, Edwin	*Somerville.*
Corbett, Francis A., M.D.	*Boston.*
Cote, Achille P.	*Woonsocket, R. I.*
Creed, John Joseph	*South Boston.*
De La Bruere, L. B.	*Quebec, Canada.*
Dean, Waldo Forest	*Cochituate.*
Derby, Charles E.	*Keene, N. H.*
De Witt, Newton Allen	*Cambridge.*
Dickie, Francis Herman	*Boston.*
Eastman, Ervin A.	*South Weare, N. H.*
Fish, Edson Kendall	*Enosburgh Falls, Vt.*
Freeze, Selden H.	*Havelock, N. B.*
Gallup, Edward Clark	*Bristol, R. I.*
Gould, Charles Irving	*Winchester, N. H.*
Hackett, Michael George	*Boston.*
Hardie, John Asa	*Natick.*
Hayden, Frank Augustus	*Norway, Me.*
Jeffrey, Frederick Ernest	*Salem.*
Kelley, Matthew J.	*South Boston.*
Lane, A. Lincoln	*Boston.*
Laliberty, Joseph	*Boston.*
Levin, Barry Joseph	*Boston.*
Mahan, William Andrew	*Natick.*
Marren, Arthur Quinlan	*Lowell.*
Marstin, Clayton Raymond	*Braintree.*
Mason, Harry Clifford	*Ellsworth, Me.*
Minot, Edgar Howard	*Bridgton, Me.*
McDonald, John Henry	*Ashmount.*
McDonough, Augustine Edward	*South Boston.*
McGahan, J. Harvey	*Waltham.*
Neales, James	*West Somerville.*
Nugent, Thomas Joseph	*Milford.*
O'Neill, Eugene Francis	*South Boston.*
O'Reilly, Michael Joseph	*Worcester.*
Otis, Clark Harrison	*Colchester, Conn.*
Powers, Maxwell	*Whitman.*
Proctor, Charles Marden	*Malden.*
Purdie, Marie Marguerita	*Fredericton, N. B.*
Ritchie, Stephen Galway, B.A.	*Hampton, N. B.*
Saville, Carlton Morse	*Rockland.*

Tracy, Martin Charles	*Shelburne, Vt.*
Santom, Frederick George	*Worcester.*
Wetherbee, Irving J.	*Dorchester.*
Webb, Charles Henry	*Monson.*
Wellman, Charles Hale	*Westminster, Vt.*
Whittemore, Winthrop Colbath	*Jamaica Plain.*

Junior Class.

Aery, Thomas	*Marblehead.*
Baylies, Alfred	*Roxbury.*
Bradlee, Leonard M.	*Milton.*
Bridge, Walter George	*Morrisville, Vt.*
Brown, Alfred Henry	*Neponset.*
Church, Howard W.	*Bristol, R. I.*
Coy, William S.	*Westerly, R. I.*
Coyne, John W.	*Sterling.*
Crawford, Thomas Augustine	*South Boston.*
Cronan, Charles A.	*Milford.*
Curley, John M.	*Boston.*
Davis, Wendell F.	*North Acton.*
Delahanty, Joseph F.	*South Boston.*
DeWager, Emmanuel A.	*Provincetown.*
Dickerman, Ralph W.	*Taunton.*
Duncan, Corinne E.	*Rochester, Eng.*
Fogg, W. S.	*Cornish, Me.*
Ford, Thomas A.	*Hopkinton.*
Gallup, Julius C., Jr.	*Bristol, R. I.*
Gorman, William H.	*Waltham.*
Hayden, R. F.	*Cambridge.*
Jepsen, Jeppe C.	*South Boston.*
Johnson, Carl H.	*Roxbury.*
Keenan, William Joseph	*Cambridge.*
Kelley, Peter F.	*Boston.*
Kenney, Blanche M.	*Providence, R. I.*
Kenney, Maud A. E.	*Providence, R. I.*
Kenswil, Jean E.	*Paramaribo, S. A.*
Leith, George W.	*Lowell.*
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Luce, Murry F.	*Haverhill.*
McElhinney, George M.	*Ottawa, Canada.*
McGourty, Edward T.	*Worcester.*
McTeer, Frederick J.	*Machias, Me.*
Merrill, William Louis	*Portland, Me.*

Neals, William A.	*Gorham, N. H.*
Nichols, Woodbury F.	*Bath, Me.*
O'Donnell, John E. C.	*Wilmington.*
Parker, Calvin M.	*Saylesville, R. I.*
Parker, Lester	*Cambridge.*
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Race, Clarence A.	*East Boothbay, Me.*
Ramsay, Howard L.	*Medford Hillside.*
Richmond, Claude Maxwell	*Springfield, Vt.*
Roberts, Walter N.	*Rockville, Conn.*
Sherry, Frederick T.	*Dover, N. H.*
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Smith, James F.	*Waltham.*
Thomson, Hugo S.	*Canaan, Conn.*
Viles, Charles R.	*Showhegan, Me.*
Whitten, Frank Eustis	*Waltham.*
Yates, Rollin E.	*Providence, R. I.*

Freshman Class.

Allen, Harry Prescott	*Boston.*
Bennett, Edward Stephen	*Waltham.*
Berks, Pliny Woodside	*Jamaica Plain.*
Burke, Edward Vincent	*Natick.*
Burke, Foster Alvin McLeod	*Haverhill.*
Bussey, Joseph Henry	*East Boston.*
Cail, James Walker	*New Brunswick.*
Cann, Melvin Clayton	*Yarmouth, N. S.*
Carter, Farquhar Donaldson	*Dorchester.*
Chipman, Fred Jackson	*Portland, Me.*
Clark, Arthur Hight	*New Portland, Me.*
Colton, James Clement	*Providence, R. I.*
Conway, Francis Bernard	*Cambridgeport.*
Cote, Omer Hervey	*Woonsocket, R. I.*
Cousens, Frank B.	*Biddeford, Me.*
Duffy, Edward Thomas	*Hartford, Conn.*
Edmunds, Fred Andrew	*Bethel, Vt.*
Fox, Edward T.	*Boston.*
French, Frank Russell	*Brockton.*
Garland, Ross Samuel	*Somerville.*
Grant, Giles Carpenter	*Portland, Me.*
Hackett, Ephraim Russell	*Kingfield, Me.*
Hayes, William James	*West Quincy.*
Homan, Ernest Warren	*Saugus.*
Keith, Ivan S.	*Jamaica Plain.*

King, Frederick Eben	*ChipmanQueens,N.B.*
Lawton, James A.	*Middletown, Conn.*
Locke, Maurice Edwin	*Brockton.*
Lockhart, James Proctor	*Pemaquid, Me.*
Lincoln, Ernest F.	*Leominster.*
Lougee, Charles Samuel	*E. Parsonsfield, Me.*
Macleod, Alexander Smith	*Brookline,*
MacNamara, Francis B.	*South Boston.*
Maloney, James Henry	*Woburn.*
Merrill, Edward A.	*Winn, Me.*
Moody, S. Irving	*Brockton.*
Moore, Horace Dwight	*Lynn.*
Pierce, Lewis J.	*Boston.*
Perry, Stephen Driscol	*New Bedford.*
Pratt, Sumner Woodbury	*Parsonsfield, Me.*
Ramsdell, Charles Fred, Jr.	*Dover, N. H.*
Romanow, Mark	*Boston.*
Rund, Charles	*Jamaica Plain.*
Russell, Fred Paris	*Shrewsbury, Vt.*
Sheldon, Daniel Frost	*E. Highgate, Vt.*
Small, Harry P.	*Portland, Me.*
Smart, Albert Lee	*Lancaster.*
Smith, Herbert Daniel	*Holyoke.*
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Sullivan, Frank	*St. Stephen, N. B.*
Taylor, Ernest B.	*Waltham.*
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Tewksbury, Ralph Montague	*Woodstock, Vt.*
Thayer, John Philip	*Keene, N. H.*
Troy, Joseph H.	*Providence, R. I.*
Tunnicliffe, Edmund Harrison	*Ashland.*
Wells, Rollin Eugene	*Lynn.*
Weston, Frank Loring	*Canton.*

Summary.

CORPS OF INSTRUCTION.

Emeritus	3	
Professors	40	
Assistant and Adjunct Professors	8	
Instructors	25	
Lecturers	12	
Assistants	18	
Total engaged in work of instruction	—	106

STUDENTS.

College of Letters:		
Graduate	8	
Senior	49	
Junior	55	
Sophomore	56	
Freshman	64	
Special	38	
	—	270
Divinity School:		
Graduate	1	
Senior	3	
Middle	4	
Junior	5	
Sub-Junior	1	
Special	1	
	—	15
Medical School:		
Senior	38	
Junior	40	
Sophomore	69	
Freshman	86	
Special	19	
	—	252
Dental School:		
Senior	54	
Junior	53	
Freshman	58	
	—	165
Summer Schools		19
Bromfield-Pearson School		4
Total number of students		725
Names appearing twice		14

DEGREES AND HONORS

1898-99.

Forty-Third Annual Commencement.

June 21, 1899.

DEGREES CONFERRED.

HONORARY.

Doctors of Laws.

WILLIAM ROLLIN SHIPMAN.
MINTON WARREN.
AUSTIN BARCLAY FLETCHER.

Literary Doctors.

WILLIAM CAREY JOSLYN.
ARTHUR WINSLOW PEIRCE.
HARRISON SPOFFORD WHITMAN.

Masters of Arts.

ELBERT HUBBARD.
JOHN RIDLON.

Doctors of Divinity.

FREDERICK W. HAMILTON.
SULLIVAN LEE McCOLLESTER.
CHARLES JAMES WHITE.

IN COURSE.

Bachelors of Arts.

FANNIE GAGE ALLISON (with Final Honors in German).
CHARLES ALVIN BEAN (with Honorable Mention in Mathematics).
LOUISA JANE BELLOWS (with Final Honors in Greek and Honorable Mention in Latin).
FANNIE ELIZA BRADBURY (with Honorable Mention in German and Latin).

GRACE WILLIS CARLETON (with Honorable Mention in English, French, and German).

EDWIN KING CARPENTER.

LIZZIE MAUD CARVILL (with Honorable Mention in Biology).

HARRY WESCOTT CLOUGH (with Final Honors in English and Honorable Mention in French).

LENA RICE COGSWELL (with Honorable Mention in Greek).

KATE ELIZABETH COUSENS (with Honorable Mention in French and German).

FRANK JOSEPH COWAN.

ERNEST STANLEY DOANE (with Honorable Mention in Biology and Philosophy).

ISAAC BRADLEE GAGE.

LUCY HELEN GAGE.

GRACE EVELYN GOUDEY (with Final Honors in Greek and Honorable Mention in German and Latin).

FRANK MERRILL HOWE.

IRA RICH KENT (with Final Honors in French and Honorable Mention in History).

ISABELLA GERTRUDE KNIGHT (with Final Honors in German and Honorable Mention in French).

FRANK WARREN KNOWLTON (with Honorable Mention in Philosophy).

GRACE HARVEY LANE (with Final Honors in French and German and Honorable Mention in English).

FLORENCE MAY LEWIS (with Honorable Mention in German and Greek).

CHARLES REMINGTON MARVIN.

ARVILLA FLORENCE NICHOLS (with Final Honors in Greek and Honorable Mention in German).

ETTA FRANCES PHILBROOK (with Final Honors in Mathematics).

EDWARD WELLINGTON RICH.

HERBERT HAY RICHARDSON (with Honorable Mention in Greek and Latin).

FORSTER HANSON SMITH.

MORTON ADAMS STURTEVANT (with Final Honors in Latin).

WALTER FRANK THOMPSON.

SHELLEY DAVIS VINCENT.

HELEN RIDLER WHITE (with Final Honors in Mathematics and Honorable Mention in German and Greek).

ARTHUR BRYANT WHITNEY (with Final Honors in Philosophy and Honorable Mention in English and German).

HARRY FARRINGTON WILEY (with Honorable Mention in Mathematics).

MARY FRANCES YEATON (with Final Honors in Mathematics).

Bachelor of Philosophy.

RUFUS AUSTIN WHITE (extra ordinem).

Bachelors of Science in Civil Engineering.

CHARLES ROLLIN ALLEN.

LEWIS BARTLETT.

ARTHUR STACEY BUSS.

FRED FAY GRISWOLD.

HARRY EMERY HOLMES.

ERNEST GILMAN MARBLE.

WILLIAM BOULAY SMITH.

Bachelors of Science in Electrical Engineering.

CARL GORDON BRIGHTMAN.

ORVILLE COOPER (with Honorable Mention in Electricity).

MERVIN NATHANIEL DAVIS.

ELBERT EUGENE GIBSON (with Honorable Mention in Electricity).

LESLIE ERASTUS HUNTER.

HARRY LIVINGSTON LITCHFIELD.

JOHN ISAAC MANGE.

GEORGE NELSON ROBINSON (extra ordinem).

HARRIS CUSHMAN TROW.

JOHN EUGENE WALLACE (with Honorable Mention in Electricity).

Bachelor of Science in the Medical Preparatory Course.

CHARLES WONSON EVELETH (with Honorable Mention in Biology).

Bachelors of Science in Biology.

BERTHA FAUSTINA LAWRENCE.

GEORGE FISHER MORTON (with Honorable Mention in Biology).

Bachelors of Science in General Science.

FRANK WOODS LOVERING (with Honorable Mention in Biology).

ANNA LUCY MORTON (with Honorable Mention in Biology and French).

Bachelors of Divinity.

RALPH HOLBROOKE CHEEVER.
FRANK FAY EDDY (extra ordinem).
REIGNOLD KENT MARVIN.
CHARLES FRANKLIN PATTERSON.
CHARLES HENRY PENNOYER.
CHARLES ELLSWORTH PETTY.
HANNAH JEWETT POWELL.

Doctors of Medicine.

GEORGE EMILE CAISSE.
THOMAS CARBARNS CLARKSON.
HONORE JOSEPH COTE.
JOHN ED. LEO FLYNN.
WILLIAM FREDERICK GAY.
WALTER ALLEN HARDING.
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STEPHEN DOUGLAS MERRILL.
ALBERT SENSABOUGH POWE.
GEORGE WHITEHOUSE RYAN.
JOSEPH SIMPSON.
ALICE GERTRUDE SYMONDS.
FRANK HALL WASHBURNE.

Masters of Arts.

HARRISON SANBORN ALLEN.
RALPH HOLBROOKE CHEEVER.
REIGNOLD KENT MARVIN.
CHARLES ELLSWORTH PETTY.
HERBERT HAY RICHARDSON.

AWARDS OF PRIZES, 1898–99.

Goddard Prize in Latin.

Ethel Gardner Reed.

Goddard Prize in Mathematics.

Lena Pease Abbe.

Greenwood Prize Scholarship in Oratory.

Shelley Davis Vincent.

Rhetorical Prizes.

First Division.

Arthur Maynard Boutelle (1).
Forrest Sumner Lunt (2).

Second Division.

Edith Buffum Kinne (1).
Frank Leslie Hayford (2).

Third Division.

George Byron Heath (1).
Kate Elizabeth Cousens (2).

Entrance Examination Prize, 1898–99.

Mary Winship Kingsley.

Greenwood Prizes in Oratory in the Divinity School.

Reignold Kent Marvin.
Charles Ellsworth Petty.
Hannah Jewett Powell.

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Fay, Miss Harriet H.	*Washington, D.C.*

Fears, Robert	*Gloucester.*
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Frothingham, Thomas G.	*Charlestown.*
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Goldthwaite, Willard	*Salem.*
Griffith, Sarah A.	
Greenwood, Thomas J.	*Malden.*
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Huntington, C. P.	*New York.*
Hutchins, Brackett	
Hersey, S. F.	*Bangor, Me.*
Howland, Edwin	*Boston.*
Harris, Linus Monroe	*Oakdale.*
Hunt, Moses	*Charlestown.*
Jenks, Mrs. P. A.	
Jacobs, James M.	*Boston.*
Joy, John D. W.	*Boston.*
Jackson, Mrs. Cornelia M.	*Providence, R. I.*
Johnson, L. S.	*Lynn.*
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Miner, Alonzo A.	*Boston.*
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Morrison, Mrs. Charlotte G.	*Boston.*
Morrison, C. E.	*Boston.*
Morse, J. B.	
Moses, Oliver	*Bath, Me.*
Munson, Norman C.	*Shirley.*
Mussey, B. B.	*Boston.*
Norcross, J. A. and Mary E.	*Worcester.*
North Attleboro Universalist Parish	*North Attleboro.*
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Perkins, Mrs. Anna Maria	*Medford.*
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Robinson, Mrs. Rebecca T.	*Newton.*
Rollins, Henry	*Bangor, Me.*
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